THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal ESTABLISHED 1835 · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
Telegraphic Address: "TRAZETTE, PARL, LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 70. No. 3 FRIDAY, JANUARY 20, 1939

CONTENTS

	PAGE
Editorials	85
Letters to the Editor	90
Publications Received	91
The Scrap Heap	92
Overseas Railway Affairs	93
Reconditioning Wheel Sets	97
Problem of Smoke Disposal from Built-over Station	98
Large Welded German Bridges	99
Metre-Gauge 2-6-4 Tank Locomotives, South Indian Railways	103
Partitioned Vans on the G.W.R.	105

DIESEL RAILWAY TRACTION

A Supplement illustrating and describing developments in Diesel Railway Traction is presented with every copy of this week's issue

Railway Wages

ON Tuesday next, January 24, the Railway Staff National Tribunal will assemble at Montagu House, London, to begin the public hearing of the claims of the three railway trade unions against the four main-line railway companies for wage increases, reduced hours of work, and improved conditions of service. On this occasion the tribunal, which will be assisted by assessors appointed by the parties to the claims, will consist of Sir Arthur Salter (Chairman), Sir Henry Shackleton, and Mr. H. J. May. The General Secretary of each union will present and argue each case, while Mr. G. L. Darbyshire, Chief Officer for Labour and Establishment, L.M.S.R., will be the companies' advocate. Some four hundred thousand employees will be directly concerned in the proceedings, and the nature of the claims makes it clear that the hearing will occupy several days. The cost of conceding the claims has been spoken of as a sum between six and seven million pounds, and although this is, perhaps, the direct result, it must not be overlooked that the indirect effect of the claims would be likely to cost even more. There is thus bound to be much discussion concerning the companies' economic position, and it is certain that mention will be made of the fact that railway traffic receipts declined last year by over seven millions, although, of course, the actual net revenue for the year 1938 has yet to be disclosed.

Emergency Organisation of Road Transport

A scheme for the organisation of road goods transport resources in time of war was made public by the Ministry of Transport on Tuesday. It is based upon the division of the present traffic areas into districts and sub-districts under the control of Government officers, responsible to the area Chairman of Traffic Commissioners. Instead of being dealt with singly, operators in all sub-districts are invited to form themselves into groups, each group comprising from 25 to 100 vehicles used in peace time for the same sort of work, and normally kept and maintained in the same locality. The Minister of Transport explained the scheme to the press on Tuesday, acknowledging the debt of those responsible for it to the Defence Road Transport Committee. Severe rationing of fuel, he said, would be an essential war-time measure, and membership of one of the groups would be necessary to secure more than the barest minimum of supplies. Meanwhile, the Ministry is compiling a census of goods vehicles so that records of available resources can be kept by the area traffic commissioners. The plan is no theoretical product of a drawing office, but a practical proposal put forward by a specially-appointed committee representing the road industry, labour, and the railways.

* * * *

The Week's Traffics

A combined decrease of £202,000 is shown by the four group railways for the second week of 1939, following a decrease of £331,000 for the first week. In the corresponding week of 1938 there was an increase of £190,000, of which £68,500 was in coal, and £25,500 in general merchandise. For the two weeks of the present year the total decrease is £533,000 or 9·36 per cent.

	2nd Week						Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.		Total		Inc. or Dec.	
	£	£	£		£		£	%
L.M.S.R. ..	– 12,000	– 79,000	– 1,000	–	92,000	–	238,000	–10·26
L.N.E.R. ..	– 2,000	– 65,000	+ 4,000	–	63,000	–	197,000	–11·66
G.W.R. ..	– 2,000	– 26,000	– 14,000	–	42,000	–	79,000	– 8·06
S.R.	+ 1,000	– 6,000	—	–	5,000	–	19,000	– 2·68

The Great Northern Railway (Ireland) has an increase of £100, making the gain for the two weeks £550, entirely on the goods side, as passenger train earnings show no change. On the Great Southern the decrease of £17,272 to date is almost entirely in goods. Mersey Railway traffics so far show an improvement of £45. London Transport receipts for the week are up £8,300, and for the 29 weeks are up £173,300.

* * * *

The Late Mr. William Challis

Mr. W. Challis, Chief Assistant in the Signal Department of the Southern Railway, whose death last Tuesday we record with much regret, had an exceptionally long experience of signalling on lines carrying dense traffic. He spent the first part of his professional career with the former Metropolitan Railway, which he joined in the days of steam traction, mechanical signalling and manual block working, and on which he played an important part in the gradual transformation to automatic and power signalling. When he went to the Southern Railway in 1925 a similar change was beginning on the densely occupied lines leading into that company's numerous London termini, and with this work, complicated in certain instances by the rearrangement of lines, he at once became identified. Further afield there was the resignalling of the Brighton main line, and a large amount of other modernisation work on various parts of the system, much of it in connection with electrification. Mr. Challis was a master of detail, and it is a remarkable tribute to the thoroughness with which he went into every aspect of the works he had in hand that they were invariably

brought into operation punctually and without a hitch. Backed by such practical testimony, his decided and characteristically outspoken opinions were bound to command respect, even from those who held different views. Speaking for the last time at the Institution of Railway Signal Engineers on December 21 last, in the discussion on a paper by his son, Mr. E. W. Challis, he strongly defended his belief in the continued use of the conventional type of power locking frame under the conditions obtaining on the Southern Railway.

* * * *

Bengal & North Western Railway

Gross earnings for the year ended September 30, 1938, on the 1,305 miles of metre gauge line belonging to this company and on the 795 miles of the company-worked Tirhut State Railway, were Rs. 20,10,423 lower than in the previous year, and working expenses rose by Rs. 2,80,008, so that net earnings were reduced by Rs. 22,90,431. Passenger journeys were 799,842 fewer, the chief decrease being in third class, and the passenger receipts of Rs. 1,46,80,297 were Rs. 1,07,761 lower. General merchandise tonnage was down 798,419, and the principal decreases in receipts were under rice and sugar cane. A heavier programme of carriage and wagon renewals, more locomotive renewals, increased cost of coal, and additional station staff to comply with hours of employment regulations caused the rise in expenses.

	1936-37	1937-38
Mean mileage	2,109	2,112
Passengers	33,008,248	30,928,959
General merchandise, tons	5,044,450	4,246,031
Train-miles	9,943,080	9,803,781
Operating ratio, per cent.	44·04	47·15
	Rs.	Rs.
Coaching receipts	1,55,46,672	1,53,76,088
Goods traffic receipts	2,28,16,879	2,09,49,641
Total earnings	3,95,21,209	3,75,10,786
Working expenses	1,74,06,736	1,76,86,744
Net earnings	2,21,14,473	1,98,24,042

The company's share of net earnings was Rs. 1,14,25,962, realising, less loss on remittances, £856,674, compared with Rs. 1,26,62,140 and £955,018 for 1936-37. Stockholders again receive a total distribution of 18 per cent.

* * * *

Joint Railway "Square Deal" Advertising

The four British main-line railways have long co-operated in advertising facilities common to them all, but by far the greatest joint effort has been the "square deal" campaign publicity. Since November 24, when the first manifesto appeared in the press throughout the country, there has been incessant advertising in a variety of forms. The companies have devoted a wealth of poster sites to "square deal" bills, and to date a total of 130,000 posters has been so displayed. Every time a press announcement is made, 136 national and provincial morning and evening newspapers are used. On one occasion 788 weekly newspapers also carried a manifesto. In order to ensure uniformity, stereotypes of an advertisement are made in London and distributed all over Britain. Every newspaper advertisement has been reproduced as a handbill, 2,000,000 of which, with a total paper weight of 12 tons, have been given to the public. The familiar "Clear the Lines" booklet, of which 2,000,000 copies have been produced, involved the use of 67 tons of paper. Fast printing machines turned out 150,000 copies per day. Unusual places have been used for this unusual publicity. Station clocks, platform barriers, and booking office windows have all been employed, and during the Christmas and New Year periods aural publicity supplemented visual advertising when loudspeakers were used to address the crowds at certain large stations.

The Attraction of Comfort

As we recorded not long ago, new rolling stock was introduced last mid-summer on the well-known New York—Chicago expresses, the Twentieth Century Limited and the Broadway Limited of the New York Central and the Pennsylvania Railroads respectively. The new stock was, of course, air-conditioned and equipped with all the latest refinements for the comfort of passengers. As we have so often stressed the importance—in the interests of the railway no less than its clients—of ministering to the well-being of railway travellers, it will not come as a surprise when we report the experience of the New York Central in the first six months of operation of its new stock. Mr. L. W. Landman, the General Passenger Traffic Manager of the system, reports an increase of approximately 40 per cent. in the number of passengers with a corresponding increase in revenue. Not only so, but the fact that the new rolling stock has been built to the latest designs of lightweight all-steel construction has made it possible to carry the additional passengers with over 10 per cent. decrease in the number of sections of the train which it has been necessary to run. Thus the cost of operation has been reduced at the same time as the revenue has increased.

* * * *

Port Victoria

The feverish search of the press for fresh copy has been giving Port Victoria quite an exciting time recently. Based for the most part on an unfounded report that the Southern Railway was to close down its property there, whole pages of publicity have been given to the port in newspapers and magazines. There are still indications, however, that like the Sovereign in honour of whom it was named, Port Victoria will live through "Sixty Glorious Years." Situated in the Isle of Grain near the confluence of the Thames and Medway and approached by a single line branch across the Hundred of Hoo from Gravesend, the port, then consisting of a landing stage and hotel, was opened by the South Eastern Railway in 1882 to compete with the facilities of the rival London, Chatham & Dover Railway at Sheerness and Queenborough. It was also planned to build a great dock once traffic had developed. Although its success in this direction was limited, and after the working agreement between the S.E.R. and the L.C. & D.R. Port Victoria became redundant, owing to its short rail route to London the pier was much favoured by travelling Royalty—including King Edward VII and the ex-Kaiser.

* * * *

Northern Ireland Parliament and Transport Reports

The select committee of both Houses of the Northern Ireland Parliament set up to consider the reports of Judge Thompson and the M'Lintock Committee on Transport in Northern Ireland quickly got to work and held its second meeting on January 6. Though its sittings are in private and no statement of its progress will be made until its final report is issued, we understand that at that meeting Mr. D. L. Clarke and Mr. A. Morrison, the Chairman and General Manager respectively of the Transport Board gave evidence. Their opinions were asked upon the recommendations of the M'Lintock Committee that the existing Transport Board should be merged in a new body to include representatives of the board, of the Belfast & County Down Railway, and of the L.M.S.R. Northern Counties Committee, with the Great Northern sharing in the pool so far as the northern part of its undertaking is concerned. They are believed to have expressed the opinion that the railways could not be

entirely dispensed with, but that parts of them could be closed with advantage to the pool; the board could cater for a large proportion of both passenger and freight traffic. Representatives of the railways will be invited to express their views at later meetings.

* * * *

Garratts Flatten Gradients

Some remarkable uphill work by one of the 4-6-2+2-6-4 Garratt locomotives of the Algerian Railways, described and illustrated in the March 27, 1936, issue of THE RAILWAY GAZETTE, came under review recently in our Paris contemporary *Transports*. With a load of 385 tons, one of these engines accelerated from a dead start at Boufarik to 52 m.p.h. up a continuous gradient of 1 in 80, and covered 8·4 miles of this ascent to Blida in 12 min. 45 sec. start to stop. Later an average of 39·1 m.p.h. was maintained with 340 tons up the considerably steeper inclination of 1 in 45 to 1 in 50, speed not falling below 36½ m.p.h. on the 1 in 45; no greater cut-off than 29 per cent. was required, and full boiler pressure was maintained throughout the run. In a return journey the same engine sustained an average of 70·3 m.p.h. for seven miles, reaching the maximum permissible limit of 75 m.p.h. This was part of the journey of the Casablanca—Algiers express, which covers the 808 miles between these towns in 25 hr. 15 min., at an overall average of 32 m.p.h., inclusive of 62 stops totalling 3 hr. 42 min. and many gradients of from 1 in 50 to 1 in 66 in steepness. Exactly one-quarter of the distance, on the Morocco section of the journey—the 202 miles between Casablanca and Fez—is electrically worked.

* * * *

The "NX" Route System for Stratford

The announcement, made on our contracts page today, that the "NX" route setting system has been selected for Stratford, L.N.E.R., and certain junctions and lines in the vicinity of that important station, is of considerable interest to signal engineers and traffic officers, marking its first application to a complicated layout in this country, the only other installation of the kind here being the comparatively simple one at Brunswick, Cheshire Lines, described in our issue of April 2, 1937 (page 656). The fundamental conception involved, namely the identification of a route by its commencing and terminating points and the manipulation of two handles, corresponding therewith, to set and signal it, has, of course, long been known, and has been applied as standard practice for many years on the former Est lines in France, where there are many power installations based on that idea. The actual method of accomplishing the desired result differs, however, from that which will be used in this important work on the L.N.E.R. Route setting on what we may call the direct principle, already in use on the line, has been selected for Liverpool Street terminus, so that these old Great Eastern lines, equipped in the 'nineties with Sykes' lock-and-block—a most progressive step at the time—will before long possess a remarkable group of highly developed power interlockings.

* * * *

E.P. Signalling in Cold Weather

In our editorial note "Christmas and the Railways" on page 1127 of our issue of December 30, 1938, in speaking of pneumatic appliances, we referred to "the freezing of valves." We regret to learn that this led some readers to think that we were referring to the electro-pneumatic signalling apparatus, so widely used on the London Transport lines, but this was not in our mind. We were thinking of other pneumatic devices. The signalling equipment, we are informed, functioned with remarkable regularity and efficiency throughout the severe weather. There were no failures that could be attributed to the electro-pneumatic signal system, as such, and certainly no case of a valve freezing. The prevention of freezing of such apparatus and other electro-pneumatic equipment has been the object of intensive investigation and study, and the resultant preventive methods have met with success. This subject was dealt with very informatively by the late Mr. R. S. Proud, in his paper on electro-pneumatic signalling to the Institution of Railway Signal Engineers on May 20, 1936, and referred to in an editorial article in our issue of July 3, 1936, page 5, in which he explained the comprehensive measures taken to exclude moisture from the mains and apparatus.

* * * *

Equipment Defects

In commenting on accidents, reference is sometimes made in these columns to defects in equipment which contributed to the mishaps, either directly or in association with some misunderstanding or thoughtlessness. All engineers know that the most carefully designed devices can have their purpose nullified, wholly or in part, by misuse, poor maintenance, or wrong adjustment. Any reference to such a defect should, of course, be considered in the light of all the circumstances set forth in the Ministry of Transport Report to which attention is being directed, and any inferences drawn therefrom qualified by the known general experience of railway engineers. If this is done it will almost invariably be found that an outstanding feature of the case is the rare incidence of such defects in practice, a testimony to the general excellence of design and construction found in the equipment used on our railways, as well as to the care with which it is used and maintained. For example, the recent failure of a steam brake valve was deemed to have been due to a faulty adjustment against which there was a specific prohibition; yet it transpired that this failure was only one of two over a long period of years; and, in fact, constituted a tribute to the design of the valve.

* * * *

Don't Say "Ninety-Nine"!

Visiting various London termini during that arctic spell when lateness was, quite understandably, all at sixties and seventies, we were nevertheless moved to wonderment by the outward and visible signs on a certain arrival indicator, according to which no fewer than three trains were running 99 min. late. Our stupefaction at the coincidence turned to perplexity when a rapid scrutiny-cum-calculation told us that in the matter of estimates someone had most decidedly "undered," and then it suddenly dawned on us. With a standard of punctuality seldom deteriorating to 2-figure lateness, the railway company concerned argued, *a fortiori*, that the provision of a third space under "Min. Late" was an unwarrantable expense, and had therefore omitted it. Evidently, though, no allowance had been made for the rigours of a super-freeze causing everything, except the temperature, to "hit a new high," and having witnessed one such result we think the omission should be made good. We realise, of course, that, just as shoppers are sometimes allured by that specious "nine-and-eleven-three" bait, so 99 may possibly carry a greater appeal than, say, 115 to those who stand and wait, but at the same time we sympathise with the shivering sportsman who, after gazing with us at the score-board and murmuring "99 not in," exclaimed loudly when apprised of the true state of affairs: "Dash it, Sir, it's not cricket!"

XUM

Railways Amplify their Claim

AS indicated in these columns on January 13, the railway companies have been busily engaged since the middle of December in explaining their proposals to the national trading and commercial organisations, as well as road haulage associations and the coastwise shipping interests, for the purpose of hearing and endeavouring to meet any objections which they might have to the companies' proposals. This procedure has been adopted in order that, if practicable, agreed memoranda might be submitted to the special committee which the Transport Advisory Council has appointed to prepare a report for its consideration. These negotiations and discussions have revealed that, while there is general agreement that the railway companies have a *prima facie* case for some relief from the statutory control of their rates, the trading organisations generally are desirous that some form of protection should be afforded them if the present system of rate control is abolished. At the close of the T.A.C. committee meeting on Friday last, therefore, a statement was issued indicating that for the purpose of meeting this request the railway companies had made an important amplification of their original proposals so far as they concerned traders and agriculturalists. This statement, which is reproduced on page 110, records that, until a complete system of co-ordination of transport has been established, the railways undertake not to seek any alteration of the law with reference to the provision of reasonable facilities, through rates, or standard conditions of carriage.

Further, they propose that regular periodical meetings should be held between the railway companies and the various trading associations for the discussion of railway rates and charges, trade prices, and other matters of mutual interest. The purpose of these meetings would be to obtain agreement by friendly negotiations on matters of dispute touching these questions but, in the event of agreement proving unattainable, there would be the right of appeal to such a body as the Railway Rates Tribunal on the question as to the reasonableness or otherwise of any particular charge. The railway representatives made it clear that they have not yet had an opportunity of laying their proposals before the general body of traders and, for that purpose, they took this opportunity of emphasising the main features of the scheme which they have in mind. These include the points that all rates must be reasonable, and that if a trader or agriculturalist considers the rate quoted to him is unreasonable, he can complain to the Railway Rates Tribunal, but that, where he is a member of a recognised trading association, he can, before appealing to that body, lay his complaint before the regular joint meeting of that association with the railways.

The railway companies suggest that under such an arrangement traders will have, under existing conditions of competition, ample protection against injustice or excessive charges. Further, the companies are prepared to agree to the new legislation which will be necessary to implement these arrangements being operative for a period of five years only, at the end of which time the question could be reviewed in the light of experience and the then-existing circumstances. We understand that these amplifications of the companies' proposals, together with large numbers of memoranda which have been submitted by representative trading and commercial organisations, are now being considered by the committee, and there is at present no indication whether it will be possible for the diverse interests represented on the committee to agree a unanimous report. Meanwhile negotiations are actively proceeding between the railway companies and other trading and transport organisations, and it is possible that, for the purpose of reaching agreement, some further amplification of the companies' proposals may be suggested. The committee held a further meeting in public on January 19 at which oral evidence was heard in support of memoranda which have been submitted to it, and it is meeting again today (Friday) for the same purpose, after which it is understood that the railway companies will resume their discussions with the liaison committee representing road hauliers' organisations.

* * * *

New South Wales Government Railways

STILL further improvement is shown in the operating results achieved by the New South Wales Government Railways during the financial year ended June 30, 1938, as appears from the report received from Mr. T. J. Hartigan, Commissioner for Railways. Total earnings were higher by £1,669,620 or 9·37 per cent., but working expenses advanced by £1,404,666 or 11·37 per cent., leaving a profit on working £264,954 higher, and giving a return on capital of £3 18s. 5d., as against £3 15s. 7d. in the previous year. The Government again contributed £800,000 towards losses on working country developmental lines, although the total loss incurred on non-paying lines, after providing for working expenses, interest, exchange, and sinking fund contributions amounted to as much as £1,827,994. Adding to the profit on working the Government contribution gives a total of £6,526,128, from which is deducted for statutory charges £6,474,659 (including £5,340,000 loan interest), leaving a surplus of £51,469, compared with a surplus of £28,397 in 1936-37 and a deficit in 1935-36 of £698,262. The Commissioner points out, however, that the financial year ending June 30, 1939, will be burdened with heavy additional operating expenses.

Passenger journeys exceeded the record of the previous year by 11,512,033. In the first class passenger receipts of £1,236,615 there was an increase of £37,747 or 3·15 per cent., and these receipts represented 20·63 per cent. of the total earnings from passengers. Earnings from second class (including workmen's tickets) were £4,757,927, an increase of £333,866 or 7·55 per cent. Parcels, mails, &c., brought in £849,441, an increase of £39,484. Revenue from goods traffic including livestock was £10,830,839, an increase of £1,126,105 or 11·60 per cent. General merchandise receipts improved by £609,057, and with the exception of revenue from grain, flour, hay, straw, and chaff, the earnings from all sources were greater. Working expenses included an expenditure of £1,163,670 on betterments, renewals, and partial renewals of rolling stock, and other assets. Of the total increase of £1,669,620 in expenses an amount of £809,380 was due to advances in the Federal basic wage, the State living wage, and various award provisions. The principal results of working compare with those of the preceding year as follow:—

	1936-37	1937-38
Miles open	6,124¼	6,113¾
Train-miles	28,547,207	30,202,952
Passengers	177,837,265	189,349,298
Goods and coal, tons	13,852,194	15,589,746
Operating ratio, per cent.	69·35	70·61
	£	£
Passenger receipts	5,622,929	5,994,542
Goods and coal receipts	8,517,271	9,506,870
Total earnings	17,816,496	19,486,116
Working expenses	12,355,322	13,759,988
Net earnings	5,461,174	5,726,128

Numerous accelerations and improvements to passenger train services have been added. One of the most im-

portant alterations has been the acceleration of the Sydney—Melbourne Limited express, which now leaves Sydney half-an-hour later at 8.50 p.m. and reaches Albury at 7.30 a.m., and Melbourne at the same time as before. The diesel train, Silver City Comet, which began on September 27, 1937, to run the 422 miles between Parkes in the central wheat belt and Broken Hill has proved highly satisfactory. It maintains a throughout speed of approximately 45 miles an hour, including many stops, and it is claimed to be the first completely air-conditioned train to go into service in Australia. More diesel air-conditioned trains will be put into service on long trips through somewhat similar country as soon as funds can be made available. Additional goods train services have also been provided. The length of line partly renewed by re-railing during the year was 103 miles 54½ chains; and by re-sleepering 218 miles 42½ chains. Thermit welding of the track was continued, and a distance equivalent to 56¼ miles was treated by this method. Telephone train control was extended during the year to the Goulburn and Junee districts, so that it is now in operation on 2,959 route miles out of the 6,114.

* * * *

Overseas Publicity for Britain

WITH the growth of economic nationalism, international holiday travel is acquiring a greater significance, for the expenditure of overseas visitors in any particular country is proving of increasingly greater importance. Foremost among the organisations encouraging tourists to visit this country is the Travel & Industrial Development Association of Great Britain and Ireland, with whose work the British railway companies have been very closely associated since its inception. The principal objects of the association are to carry out national publicity overseas in order to increase the number of visitors to the British Isles; to stimulate the demand for British goods and services; and to encourage the development and establishment of new industries. The charm of the English countryside, the stability of our institutions, the pageantry that forms part of our daily life, and all those things which make up the attraction of our country, constitute national assets. But these assets can achieve their full value only as the world is made aware of them. Similarly, the workshops of Britain, the mainstay of our national well-being, require to be publicised if they are to maintain their share of the world's trade. The Government, railway companies, steamship companies, hotel associations, and local authorities are all contributing to the cost of the work of the association in spreading throughout the world knowledge of every aspect of British life and industry.

It has been estimated that, on the travel side alone, tourism is responsible for more than £30,000,000 of invisible exports in the national balance sheet. Yet the total revenue of the association in the twelve months ended March 31, 1938, was only £41,500. Despite this comparatively small income, the work has been steadily extended during this period in many different ways. An extremely wide circulation of booklets has been achieved, chief among which are those entitled "London," and the "British Isles." These were published in English and French, while new and improved editions of the "Calendar of Events" in four languages, "Hotels in Great Britain" with notes in six languages, and 20 area folders were produced and issued. A new pamphlet, termed "The Industrial Folder," printed in English, French, German, and Spanish, was issued and proved an extremely valuable means of assisting the establishment of new industries. In order to secure publicity for local industries, many local authorities bore the cost of having posters dealing with their locality specially printed by the association and these were distributed to many parts of the world.

Some indication of the considerable extent of the work accomplished can be gained from the statement that during the winter months more than one million booklets, folders, and posters were issued by the association and despatched overseas. The photographs reproduced in many of these publications are of a very high order and have evoked appreciative comment in many quarters. The mailing list is constantly revised and extended with the assistance of H.M. representatives, and members of the association include travel agencies, air lines, social and automobile clubs, chambers of commerce, and departmental stores. Cuttings of news items which appeared in "Industrial Britain" during 1937 were received from 127 separate newspapers in 26 countries, a remarkable achievement when regard is had to the difficulty of securing such cuttings. More than 1,000 photographs supplied by the association were published and more than 60 newspapers and periodicals were used for organised advertising schemes. Sixty British documentary films have been printed and issued for circulation throughout the world, and weekly broadcast talks have become an established feature in the programmes of about 50 Canadian and 150 American stations.

As the result of publicity work abroad, the number of enquiries for specific information increased to such an extent that it was found necessary, with the co-operation of the London County Council and a number of local authorities, to open an information bureau in Cockspur Street, London. This bureau has been warmly welcomed and is attracting a steady stream of visitors, and also of people desirous of obtaining information on industrial sites and matters. The association also has offices in New York and Paris, and, jointly with the British railway companies, on the *Queen Mary*, and these have proved of considerable assistance in enabling officials to make personal contacts with potential visitors. The work of the association is being hampered by shortage of funds, and representations were therefore made to the Government recently for an increase in the amount of its annual contribution. This request was promised sympathetic consideration, and if more local authorities exercised their powers to assist in publicity work of this nature, the scope of the present arrangements could be considerably extended with advantage to the national exchequer.

* * * *

1838-1938

LOCOMOTIVES built in this country are to be found in service in practically every part of the world where railways are in existence, and the record of the British locomotive industry for soundness of design, excellence of workmanship, and reliability in service, has no parallel or really trustworthy basis by which it can be compared with other and oftentimes competing sources of supply. It is an achievement of which any country might be proud, and has its origin in the fact that the pioneers of railway construction and locomotive building were of British nationality. With this in mind, it is a matter of interest mingled with regret to note the passing, so far as locomotive engineering is concerned, of a firm which for the long period of 100 years held a prominent position in the circle of manufacturers whose products are known and used the world over. The name of Nasmyth, Wilson & Co. Ltd., of Manchester, has always been an honoured one in the locomotive industry; it was first seen on engines built for the London & Southampton Railway in 1838, and for the last time on some 2-6-4 type tank locomotives recently

completed for the South Indian Railway—one of which is illustrated and described on page 103 of this issue—in 1938, thus completing a full century of activity in connection with the output of locomotives. Although now ceasing to be identified with the designing and building of railway engines, Nasmyth, Wilson & Co. Ltd. will, as is stated in the article (on page 104), continue to be active in producing other kinds of engineering requirements, thus maintaining an association which began in the year 1834 when James Nasmyth, the inventor of the steam hammer, established a small works at Patricroft, which a few years later had developed to a considerable extent and formed the Bridgewater Foundry, by which name it is now, 104 years later, known to every mechanical engineer to whatever branch of his calling he may belong.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

New York to Washington

United University Club,
1, Suffolk Street, S.W.1
January 11

To the Editor of The Railway Gazette

Sir,—I am obliged to Mr. Crickmay for stating the correct distance by the Pennsylvania RR. between New York and Washington. The figure which I gave, 226·5 miles, is that which appears in the Pennsylvania company's own timetable; and I note that it is also shown in the Seaboard Air Line timetable (effective July 15, 1938) giving the connections between New York and Florida *via* Washington. Even with the lower mileage the run is of course a very fine one.

Yours faithfully,
W. B. THOMPSON

Punctuality in 1938

London, January 9

To the Editor of The Railway Gazette

Sir,—As in previous years, I send you the "punctuality results" of my journeys in Great Britain during 1938, covering over 50,000 miles and including, as before, all journeys of over 30 miles. Summer Saturdays are not excluded, but a period of three weeks in December last, when weather conditions made punctuality impossible, has been eliminated. Arrivals at London termini have averaged 5·25 min. late, with a "punctual or one minute late" percentage of 36; in the provinces (at termini or through stations in large towns) the average late arrival has been 3·1 min., with 46 per cent. "punctual or one minute late." On the eleven high-speed trains of the L.N.E.R., G.W.R., and L.M.S.R., 35 journeys yielded an average late arrival of exactly one minute, and these arrivals are, of course, included in the figures mentioned above. This compares well with the 1936 and 1937 results, which were 5·9 and 7·2 min. late for London arrivals and 3·7 and 4·5 min. in the provinces, but is, I am afraid, considerably worse than my figures for travel on the Continent, for 30 express arrivals in France during 1938 averaged only one minute late, and 29 of them were punctual.

It is, I think, significant that one British railway has just referred officially to the danger of "a *slight* error in regulation whereby a slow train is allowed to precede and delay a faster one"—the italics are my own—with "far-reaching delays through re-action," and it is interesting to see how frequently some of our vaunted "60-miles-an-hour" expresses fail to adhere to the schedule to which publicity has been given. I have taken, as an example of this, recent journeys between London and a provincial centre, nearly 100 miles away, where the booked speed of about 61 m.p.h. is well within the capacity of the engine, gradients are very easy, and loads almost always well below the maximum permitted tonnage. Yet I find that on 150 journeys ("down" and "up" combined), since this particular booking began, time has actually been kept on only 48 occasions. This, of course, is due, not to loss of time by engine, but to the lack of any effort to recover time lost by small delays, and it should be noted that in this case no excessive speed would be necessary to secure a punctual arrival. Indeed, the tendency to associate recovery of time with "excessive" speed seems to be based on a misunderstanding, for the time saved by faster downhill running is very small indeed compared with the gain from greater effort on level and uphill lengths, and the whole object of time recovery, as it is achieved abroad, is to bring the train back to schedule at the earliest possible moment and so to limit those "far-reaching delays through re-action" which British railway officers already deplore. And if, as a result of their present crusade, the railways regain a bigger share of the "heavy" traffic they carried in pre-war days, surely this aspect of punctuality will become very important indeed?

Yours, &c.,
"VIATOR"

The Square Deal Campaign

BM/HLMX, London, W.C.1
December 28

To the Editor of The Railway Gazette

Sir,—In the booklet "Clear the Line" occurs the statement that "British railways are the most efficient in the world." May a member of the public be allowed, through the courtesy of your journal, to ask just how the railways have arrived at this conclusion? If the "operating ratio" gives any clue; or if the gross-ton-miles per hour figures of freight trains offer any indication; or if the average cost of moving a ton of freight one mile in comparison with other not inconsiderable railways in this world of ours provides any basis for diagnosing efficiency; or if the willingness—the ready willingness of the railways to adapt or modify their passenger train services—in a speedy and flexible manner—and even anticipate the needs and desires of their patrons has anything to do with efficiency; or lastly if ability to give *standardised* and *detailed* attention to such apparently trivial matters as cleaning, heating, and ventilating passenger equipment and providing acceptable meals served in an attractive way by attractive people is, by any chance, one of many criteria by which railway efficiency may be appraised, then I suggest that the railways have made a statement which they might find it extremely difficult to substantiate!

Because the railways are severely handicapped, there is all the more reason—when they appeal to the public for help—why they should ponder the fact that some years ago General Motors Corporation set up a "Customer Research Department" under very able direction. The corporation—through this department—has charged itself with: "Finding out what people like, and doing more of it; finding out what people don't like, and doing less of it." Their net sales in 1937 were over £300,000,000. Does that suggest anything?

Yours truly,
J. L. M. BARCLAY

Retired Railway Officers' Society.—This society held its annual ladies' afternoon at the Abercorn Rooms, Great Eastern Hotel, London, on Friday last, January 13, when 74 members and their ladies met for tea and a programme of songs and humorous character sketches by Miss Doris Buckley and Miss Flavia Gallee. The proceedings were carried through in a very happy vein, and the afternoon proved to be one of the most enjoyable of these annual gatherings.

PUBLICATIONS RECEIVED

Locomotive Management : Cleaning—Driving—Maintenance. 7th Edition. By Jas. T. Hodgson and Chas. S. Lake. London : St. Margaret's Technical Press Limited, 33, Tothill Street, S.W.1. 8½ in. × 5½ in. × 1 in. 492 pp. + xii pp. Profusely illustrated. Price 6s. net.—Since it was first published in 1908, this book must have been an invaluable work of reference to a host of railway officials and others having to do with the working of locomotives, as well as drivers and firemen and running shed foremen. For thirty years it has been familiar to railwaymen as "Hodgson & Williams," and this, the first comprehensive revision since Mr. Williams's death, has been undertaken by Mr. Chas. S. Lake. Within its 500 pages are to be found descriptions and diagrams of the construction and working of every main part of a steam locomotive and of every item of the auxiliary machinery. An outline is given of the method of manufacture and erection of the various portions of a locomotive's structure, but more detailed attention is devoted to the various auxiliary working parts which require frequent attention by the maintenance staff. Special attention is paid to new developments, such as roller bearings, feed water heaters, poppet valve gears, soot blowers, grease lubrication, speed indicators, improved water gauges, ash disposal, and thermic syphons, and one is impressed by the extent to which private manufacturers of locomotive accessories have contributed towards the maintenance and operation of locomotives at a more uniformly high level of efficiency. Perhaps the most striking thing on comparing the present edition with the last is the replacement of illustrations of structural details such as axleboxes, piston valves, and connecting rods from designs of the former constituent railway companies by the new standardised designs of the group companies. This represents a great deal more than mere standardisation. Some of the axlebox designs illustrated in the last edition, for instance, were faulty in the light of modern knowledge of the mechanism of oil film lubrication, and the new designs represent a fundamental improvement, not a mere empirical selection from the best of the older designs.

This book is an essentially practical one, and after passing through successive revisions it would be almost impossible to find fault with the selection of illustrations or the apportionment of explanatory and descriptive matter. The majority of the drawings in the present edition are new, and such original drawings as have been retained have been re-drawn and re-lettered, omitting unnecessary detail, with a great gain in clarity, aided by captions to every illustration. The considerable amount of space devoted to shed regulations and lists of practical questions and answers regarding drivers' and firemen's duties are eminently helpful to the purpose of the book. Where the present reviewer would suggest a possible further improvement in future editions is in those sections where an endeavour is made to explain principles, for instance, combustion, water softening, and the expansion of steam. A clear idea of fundamental principles is not the least helpful thing to a driver anxious to get the best out of his engine. The average driver is eager to understand, but in the absence of broad and clear scientific ideas he often has curious preconceptions. The section on combustion would, in the reviewer's opinion, be most difficult to understand without such a scientific background. No attempt is made, for instance, to explain the difference between carbon dioxide and carbon monoxide and its relation to combustion, and the matter is further confused by the description of the former as "carbonic acid gas" and of the latter alternatively as "carbon monoxide" and "carbonic oxide." Again, whilst a most detailed description is given of the operation of a modern water softening plant, no explanation appears to be given of the simple chemical principles on which it works.

Finally, the reviewer would comment on the absence of any mention of streamlining. Many drivers must wonder what are the actual savings in power effected by streamlining. The information is now available and might well be summarised and added to future editions, since it is a development directly affecting the work of maintenance and operation. The book is provided with an excellent index, and the general appearance of this edition is much improved, not least by careful machining and inking to give a good black impression, clear and legible, and greatly to the benefit of the illustrations.—E. L. DIAMOND.

Mathieson's Handbook for Investors for 1939. London : Fredc. C. Mathieson & Sons, 16, Copthall Avenue, E.C.2. 6½ in. × 3½ in. 356 pages. Price 5s.—This handbook, now in its 40th year of issue, records the Stock Exchange prices and dividends for the past ten years of selected securities, particulars of which for 1938 are compiled up to the end of November. Investments are grouped under 49 headings, and a comprehensive index facilitates reference. Under British Railways are given amounts and dividends with highest and lowest prices, of all the stocks of the four group companies and of the Great Northern Railway (Ireland). Indian railway stocks or annuities recorded number fourteen, and particulars are given of the more active stocks of fifteen Dominion railways, including those of the Great Southern Railways (Eire), of eighteen American railways, and thirty foreign railways. Other useful features of the publication are the dates of Stock Exchange settling days and holidays, a perpetual yield table, information as to trustee investment, and as to income tax for investors, as well as mention of the dividend taxes in Canada, Argentina, and the U.S.A.

D. A. Low's Pocket Book for Mechanical Engineers. Revised edition. Edited by B. B. Low. London : Longmans, Green & Co. Ltd., 39, Paternoster Row, E.C.4. 6 in. × 4 in. × 1 in. 778 pp. Illustrated. Price 10s. 6d. net.—Although of the convenient size indicated by the above quoted dimensions, this text book contains a very large and complete fund of information of a statistical and general kind, without, however, anywhere sacrificing clearness either in the text or illustrations. It ranks as one of the more expensive volumes of its kind and size, and this revised edition contains much new matter under additional headings covering 240 pages and 1,000 illustrations. We are glad to note that a more than usually complete index is provided, such being a most necessary adjunct to a work of this kind.

The British Isles.—Members of an expert company of photographers have contributed some of the best of their work to the pages of the 1939 edition of "The British Isles." This booklet, issued free by the Travel & Industrial Development Association of Great Britain & Ireland, is available with French or English text. It contains 80 pages of photographs shrewdly selected to show the rich variety of attractions that entitle this country to a place in the affections of every tourist.

G.W.R. Racing Calendar, 1939.—A handy vest-pocket-size racing calendar, giving all the fixtures for 1939, has just been issued by the G.W.R. Included also is a map of the company's system and an exhortation to send yourself and even your horses (if any) to the race meetings by rail. The idea is, we presume, that a taste of Great Western speed will prove an incentive to the quadrupeds on the race track. Copies of the calendar may be obtained free from the Superintendent of the Line, Paddington Station, W.2, upon receipt of a ½d. stamped addressed envelope.

Rotary Compressors.—We have received from Keith Blackman Limited, 27, Farringdon Avenue, E.C.4, a catalogue of rotary compressors for air or gas. Used singly, they are recommended for producing a pressure or vacuum up to 5 lb. per sq. in., but higher values are obtainable by coupling the units in series. Specimen purposes for which the compressors listed are suggested are high-pressure gas lighting, power supply for industrial heating and machine propulsion, or small oil-firing installations. Types listed in the catalogue are suitable for belt drive from an external power source, or supplied as units including electric motor with direct-coupling, belt, or multiple vee-rope transmission.

THE SCRAP HEAP

"Two Trains Escape Derailment" is the heading of a newspaper paragraph. But there were at least three, for our morning train to town got us to the office without event.

* * *

Willie, at Culloden Moor,
Shut his fingers in the door.
Father said, in stern correction:
"Now we'll miss that darned connection!"

* * *

On September 26, 1879, the railway officials at Utrecht gave a concert to commemorate the 50th anniversary of the invention of the first practical railway engine invented by George Stephenson, whose portrait had been placed in the centre of a map of the Dutch Railways."—*From "The Times" of September 28, 1879.*

* * *

NEW NAMES FOR NIGERIAN LOCOMOTIVES

The four new Beyer-Garratt locomotives for the Nigerian Government Railway are to be named as under:—

J. A. Maybin G. P. O. Bulkeley
Sir William Hunt M. P. Sells

Previous engines were named:
Sultan of Sokoto Shehu of Bornu
Emir of Katsina Emir of Gwandu

An illustrated article describing these locomotives appeared in our issue of February, 7, 1936

* * *

Mrs. Bridges Adams, who died on Saturday last (January 14) in a London hospital at the age of 84, was the daughter-in-law of William Bridges Adams who patented the fishplate in 1847. She was born as Mary Daltry in South Wales in 1854 of a family of engineers, but her own public activities were concerned with politics and education in the extreme socialist interest.

* * *

WHAT'S IN A NAME?

Our correspondent in India informs us that the popularity of named trains on the B.B. & C.I.R. has become remarkable in more ways than one. Following the lead of the company, which introduced Flying Ranee matches and cigarettes, sold on that now famous train, other concerns, not only in India but abroad, have introduced Flying Ranee brands of umbrellas, gas mantles, brilliantines, indiarubber erasers (German), cinema films, wearing apparel, and a host of other widely varying commodities. Truly, imitation is the sincerest form of flattery!

* * *

Sir Edward Watkin distinguished himself in the recent contest at Exeter by his adroitness and tact as a canvasser, and a host of stories are in circulation about his readiness in dealing with hesitating voters. "Lor' bless 'ee, sir," said one old dame, when asked about her husband's vote, "my old man can't vote at all this year. Coals is mortal dear." "Yes," answered Sir Watkin—as he is called in Exeter—"it's along o' the Tories." "Be it sure, sir?" "Yes; but if I'm returned you'll have coals cheap enough next year; for I intend to do my best to repeal the law of entail." An argument which, if not perhaps conclusive, was puzzling. A shopkeeper in a bye-street was asked if he had voted. "No, I have not yet; for the truth is, I have no one to attend to my shop." "Is that all?" asks Sir Watkin, taking off his hat, and walking round the counter. "Here, put on your hat and go at once; I'll take care of your shop till you come back." And Sir Watkin did.—*From "The Railway Fly Sheet" for January, 1874.*

* * *

DUN LAOGHAIRE RUMOURS

Reminiscences of the Dublin to Kingstown railway pioneers tempts me to mention, with all due reserve, some of the rumours which are to be heard just now in Dun Laoghaire about those negotiations which are going on between Upper Merrion Street and Euston on the subject of new mail boats. One very prevalent local fear is that the new fleet will ply to North Wall, and so seriously damage the business and prospects of what the redoubtable "Mick" Manning—when town clerk of Kingstown—described as "the gentleman's entrance to Ireland." Another rumour has it that the L.M.S.R. Company is negotiating for the acquisition of a well-known yacht and boat club, and its surrounding open ground at Victoria Wharf, as the site for new *de luxe* waiting and refreshment rooms; a highly desirable and necessary provision for tourists, should it mature. But whatever may be going on behind the scenes, let us hope that Dun Laoghaire will not suffer.—*Quidnunc in his Irishman's Diary in "The Irish Times."*

[168]

LONDON AND BIRMINGHAM RAILWAY

HOURS OF DEPARTURE,
On and after 20th January, 1839.

DOWN TRAINS,
(From London.)

From				Class.
WOLVERTON	7 A.M.	to BIRMINGHAM	.....	*Mixed.*
LONDON....	7½ A.M.	to ditto	.....	*Mixed.*
.....	9½ A.M.	to ditto	.....	*Mail.*
.....	11 A.M.	to ditto	.....	*Mixed.*
.....	3 P.M.	to ditto	.....	*Mixed.*
.....	4 P.M.	to ditto	.....	*First.*
.....	5 P.M.	to WOLVERTON	.....	*Mixed.*
.....	8½ P.M.	to BIRMINGHAM	.....	*Mail, Mixed*

On Sundays

From				
LONDON....	7½ A.M.	to BIRMINGHAM	.....	*Mixed.*
.....	9½ A.M.	to ditto	.....	*Mail.*
.....	5 P.M.	to WOLVERTON	.....	*Mixed.*
.....	8½ P.M.	to BIRMINGHAM	.....	*Mail, Mixed.*

UP TRAINS,
(From Birmingham.)

From				Class.
WOLVERTON	6½ A.M.	to LONDON	.....	*Mixed.*
BIRMINGHAM	7 A.M.	to ditto	.....	*Mixed.*
.....	8½ A.M.	to ditto	.....	*Mail.*
.....	1 P.M.	to ditto	.....	*Mixed.*
.....	3 P.M.	to ditto	.....	*First.*
.....	4 P.M.	to ditto	.....	*First.*
.....	5½ P.M.	to WOLVERTON	.....	*Mixed.*
.....	11½ P.M.	to LONDON	.....	*Mail, Mixed.*

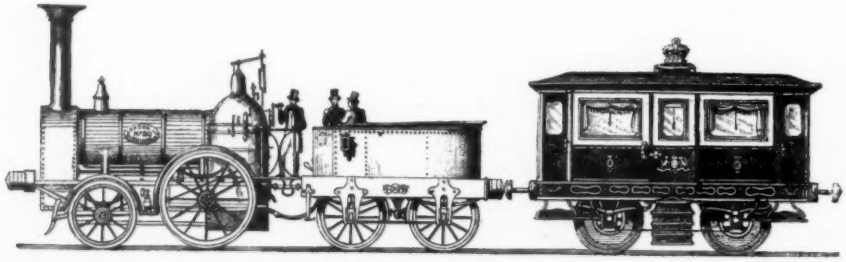
On Sundays.

From				
WOLVERTON	6½ A.M.	to LONDON	.....	*Mixed.*
BIRMINGHAM	8½ A.M.	to ditto	.....	*Mail.*
.....	1½ P.M.	to ditto	.....	*Mixed.*
.....	11½ P.M.	to ditto	.....	*Mail, Mixed.*

N.B. The times of the Trains conveying the Mails are fixed by the Postmaster General under the powers granted by Act of Parliament, Act 1 & 2 Vic. Cap. 98. *20th January, 1839.*

Smith and Ebbs, Printers, Tower-hill

A main-line timetable of exactly one hundred years ago



Left: The London & Birmingham Railway royal saloon of 1843 *and one of Edward Bury's* 5 *ft.* 6 *in. singles. Reproduced from "The Illustrated London News" of December* 2, 1843

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

Resumption of Montreal Station and Approach Works

Mr. S. J. Hungerford, President of the C.N.R., announced on December 22, that it had been definitely decided to resume the building of the central terminal station at Montreal and the high-level approach lines to the station from Victoria Bridge. The present plans involve an expenditure of about £2½ million, and tenders for part of the work will be called for immediately, further contracts being let as the work proceeds. It is intended that, during 1939, the great gap between Lagauchetiere and Dorchester Streets, already cleared of buildings and excavated, shall be cleaned out, ready for the construction of the station and mail building; also to complete the approach viaduct except the bridge over the Lachine Canal, which will be undertaken later.

When completed the new scheme will enable an adequate suburban service to be established to the South Shore without the long detour *via* St. Henri, and enable a number of level crossings in the city to be eliminated. Also, though it forms part of the original scheme abandoned 10 years ago, it contains few or none of the controversial proposals disputed between the city and railway formerly.

Mr. Hungerford added that the lines from Turcot yards and Victoria Bridge into the new station would be electrified, so that no steam locomotives would run into the city from either the west or south. Also that the Montreal and Southern Counties Railway would operate only from St. Lambert, and all services over the Victoria Bridge would be worked by the C.N.R., the space occupied by the M. & S.C.R. tracks being used for additional road traffic.

C.N.R. Equipment Acquired during 1938

In another recent statement by Mr. Hungerford upon his system during 1938, he mentions that the following equipment was acquired:—

2,000 box cars, 10 air-conditioned buffet sleeping cars, 6 air-conditioned dining cars, 5 mail and express cars, 25 sand cars, 24 snow ploughs, 6 4-8-4 type streamlined passenger locomotives, and 2 diesel shunting engines.

UNITED STATES

Railway Position Greatly Improved

Thanks to the general revival in trade, the situation of the railways has been improving rapidly in recent weeks. Net railway operating income earned in October surpassed that of October, 1937, and undoubtedly will run ahead of 1937 in November and December as well. This indicates a vast change from the dark days earlier in the year, and in February the railways did not earn enough to pay even their operating expenses and taxes. The present improvement in earnings cannot be hailed as a solution to the railways' difficulties, because they represent a return of less than 3 per cent. per annum on the property investment, but the industry has taken heart from them.

Outlook for Legislation

At no time since the New Deal Government took over in March, 1933, have the prospects for realistic legislation dealing with railway difficulties seemed, outwardly, so bright as at present. But fair promises have been made before, only to be ignored, so the industry is not seriously counting on the present favourable prospects.

Nevertheless, President Roosevelt committed himself at the time when the railways dropped their wage reduction project to support a legislative programme, if representatives of managements and the railway unions could agree upon one. Since that time a committee of six composed of Carl Gray (doyen of the executives of the Western railways and Vice-Chairman of the Union Pacific Railroad), M. W. Clement (President, Pennsylvania Railroad), E. E. Norris (President, Southern Railway), George Harrison (President, Brotherhood of Railway Clerks), D. B. Robertson (President, Brotherhood of Locomotive Firemen and Enginemen) and B. M. Jewell (Chairman, Associated Shop Crafts Employees) have been in almost constant session, and their recommendations will shortly be handed to the President.

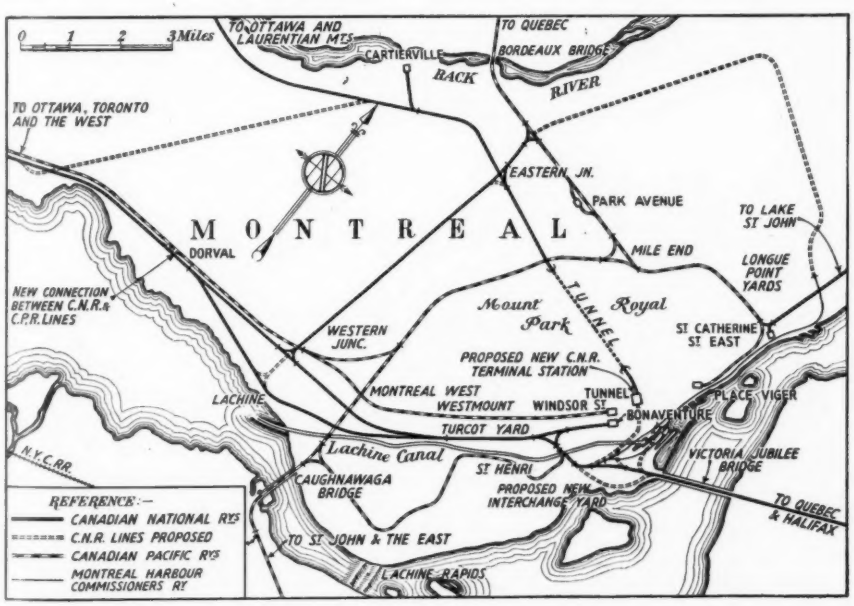
Chamber of Commerce Conference

Meantime an unofficial transport conference, called by the Chamber of Commerce of the United States, has been holding intermittent sessions, and will probably be able to supplement the recommendations to be made by the committee of six.

Assuming that the President will vigorously sponsor legislation to remedy the situation of the railways, the only obstacle to its enactment may be a recalcitrant Congress: The Democratic Party still holds a decided majority in both Houses, and presumably will obey the President's wishes. All the same, the chances of its doing so would have been much better prior to the recent election, when many enemies of the New Deal won contests over "rubber stamp" incumbents.

New Rolling Stock

With earnings improving, the railways are once again turning their attention to their depleted stock of locomotives and vehicles. Eighty additional lightweight Pullman cars are to be built for service on the New York Central and the Pennsylvania Railroads. The Chicago & North Western is planning to substitute new diesel-electric streamlined trains for its high-speed steam-drawn "400" trains between Chicago and Minneapolis. Several of the rail



Plan of Montreal city and its existing and proposed railways and stations

ways have recently ordered additional freight cars.

INDIA

The Hot Box Problem

As a result of the adverse comments in the Wedgwood Committee's report upon hot boxes and the consequent reduction in locomotive and rolling stock user and efficiency, the Railway Board has been carrying out extensive investigations, under the direction of Mr. Case, with a view to improving matters. Suitable remedies are stated to have been evolved in the form of protection to the bearings from sand and dust, with which the atmosphere in India is so often laden, and in other ways. The possibilities of exploiting indigenous rape seed oil for lubricating purposes have also been considered, and a process has been developed by which an oil having properties rivalling those of castor oil has been evolved.

Prospects of Revival of Mysore—South India Railway

For years past the Mysore Durbar has been pressing for sanction for the construction of a line of railway to connect Mysore with South India. Various surveys have been carried out to explore the best route down the *ghat* leading from the Mysore plateau, near Chamrajnagar, to the plains towards Mettupalaiyam, on the South Indian Railway, and though heavy construction work will be necessary even with steep gradients, a quite feasible alignment has been found.

Due to the uncertainty of the prospects of this line, a further traffic survey has been ordered, and the Railway Board has agreed to the construction of the line if its results are satisfactory. The survey is being carried out by the S.I.R. This line will give a new outlet to the trade of Mysore State, both to Southern India and to the port of Cochin, and it should become an important traffic route.

FRANCE

Interchange of Sections of Line between Western and South-Western Regions

In THE RAILWAY GAZETTE of October 21 mention was made in the course of an article entitled "Reduction in French Train Services" of the transfer of certain important train services—notably between Paris and Nantes—from the South Western to the Western Region of the French National Railways, and the corresponding improvement in services to and from places on the Atlantic coast. Reference was also made to the diversion of the Paris—La Rochelle traffic from the Western to the South Western Region *via* and as far as Poitiers. In an editorial note on page 673 in the same issue, emphasis was laid on the territorial peculiarity of the former P.-O. system (now South Western Region) having hitherto been responsible for the isolated Angers, Nantes, St. Nazaire section, and formerly the Savenay—Le Croisic section, surrounded by Etat (now Western Region) lines. The fact that there has been an interchange between the two regions of the above-mentioned and other lines as well as there being changes in the train services was also stated.

Details of Lines Transferred

It is now possible to give complete lists of the various sections of line that have changed hands as between these two regions, and they are tabulated below. The accompanying map will, however, assist in clarifying the position.

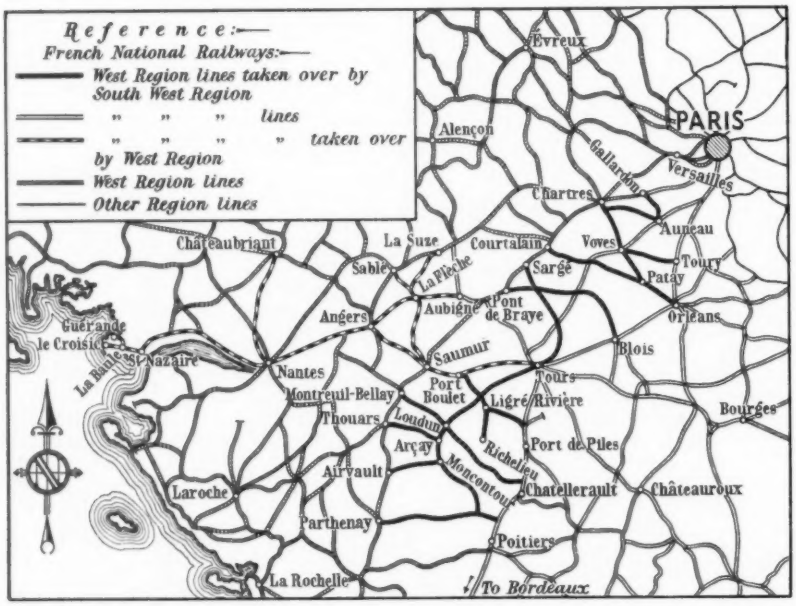
Western Region (ex-Etat) Lines Transferred to South Western (ex-P.O.-Midi) Region

Parthenay (exclusive) to Poitiers.
Poitiers to Arçay.
Airvault (exclusive) to Moncontour.
Tours to Thouars (exclusive).
Port-Boulet (exclusive) to Port-de-Piles.
Loudun to Chatellerault.
Montreuil-Bellay (exclusive) to Loudun.
Ligré-Rivierè to Richelieu.
Pont-de-Braye (exclusive) to Blois.
Sargè-sur-Bray (exclusive) to Tours.
Patay to Courtalain-St Pellerin (exclusive).
Orleans to Chartres.
Voves to Toury.*
Chartres (exclusive) to Auneau.
Auneau to Gallardon (exclusive).
Bordeaux-Benauge to Bordeaux-Etat and branches.

Lines Taken Over by the Western from the South Western Region

Tours (exclusive) to le Croisic.
La Baule-Escoublac to Guérande.
Châteaubriant to Nantes.
Angers to Aubigné (exclusive).
La Suze to Saumur.
La Flèche to Sablé.

* Road motorbus services



Sketch map showing transference of lines between South Western and Western Regions of French National Railways

CHINA

Burma-China Connections

The survey of the proposed railway from Yunnanfu, capital of the westernmost province, Yunnan, to the Burma frontier, has now reached a point close to Talifu, the principal city of Western Yunnan, and about 300 miles from the frontier, though only 150 miles as the crow flies. Meanwhile the motor road between Yunnanfu and Lashio, the terminus of the Northern Shan States branch of the Burma Railways, is in operation by lorries in fair weather, and is being improved throughout and metalled in parts.

Sino-Soviet Railway

Further reports continue to come to hand regarding progress in the construction of the great north-western railway to link Shensi—capital Sianfu—with Soviet Russia. Beyond Paochi, the present terminus of the Lung-Hai Railway west of Sianfu, the work is proceeding to Lanchow, capital of Kansu, whence there is a fairly easy route for a railway to the Russian frontier, about 130 miles distant. The work on the Soviet side is said to be proceeding night and day by forced labour. It is remarkable that the Chinese have been able to salvage so much permanent way, rolling stock, and other equipment in their retreat before the advancing Japanese forces, from the Chengchow and Tungkwan section of the Lung-Hai main line, and also from the Peiping—Hankow Railway, both north and south of Chengchow, the junction between the two routes, if reports are to be credited, as seems

reasonable. They have, however, been seriously impeded by bombardments of Tungkwan from across the Yellow River.

BRAZIL

Leopoldina Railway, Unification of Contracts Concessions

With a view to simplifying the system of control exercised by the local authorities and at the same time facilitating negotiations on such matters as rates and fares, train services, and administration in general, the Brazilian Government decided, at the end of November, 1938, that the threefold concessions under which the Leopoldina Railway had been empowered to conduct its business should be abolished in favour of a single concession. Accordingly the contracts which hitherto regulated the operation of the company's lines in the States of Minas Geraes and Rio de Janeiro were annulled and a new contract drawn up, transferring the respective concessions to the Federal Government and subordinating the entire control of the railway to this one central authority. At the same time, the Decree authorising the revision of contracts laid down that the regulations and classification applying to railways affiliated to the *Contadoria Geral de Transportes*, as also the rates and fares in force on all Federal lines, should become operative on the Leopoldina Railway. Instructions were also given to the Minister of Transport to appoint a commission with a view to drawing up an inventory of the company's property and reporting on its condition and approximate value.

Improved Passenger Service

Prior to September 1 last the best day trains between Rio and Campos stopped at all stations and took nearly 9 hr. to cover the intervening 300 km. Also, due to the very great volume of parcels to and from stations north of Campos and to intermediate connections, these trains were generally late, and the then-existing service could not handle the parcels traffic. On the above date, therefore, the timetable was modified to include an up and down *rapido* carrying only first class passengers and through parcels, with but five intermediate stops, and taking 7 hr. 10 min. and 7 hr. 25 min. Second class passengers and parcels, also intermediate-station first class passengers, are now carried by the original trains at slower schedules. Sentinel-Cammell railcar connections with Nictheroy are provided off the two new trains, and buffet cars are to be run in the latter in the near future. Stone ballasting throughout the line to Campos has now been completed.

PARAGUAY

Transport Modernisation Scheme

According to press advices from Asunción, a national transport company will shortly be formed to modernise the tramways, instal new omnibus lines, and effect a complete reorganisation of the transport services of the Paraguayan capital and suburbs. The concern will be a State enterprise, financed by national and foreign capital, with a Paraguayan board of directors, on which the Municipality of Asunción will be represented. The concessionaires for the scheme are the Compañia Americana de Luz y de Tracción.

ARGENTINA

Engineering and Transport Meetings

The annual general meeting of the River Plate branch of the Institution of Mechanical Engineers was held in Buenos Aires on November 14; Mr. W. C. R. Livesey presided. The following officers were elected for the ensuing year:—Chairman: Mr. W. F. Nixon; Honorary Secretary: Mr. N. S. Plummer; members: Messrs. R. K. Hubbard (re-elected), P. C. Dewhurst (re-elected), A. E. Livick (re-elected), and D. S. Purdom, the retiring Honorary Secretary. Prizes, consisting of engineering textbooks of their own choosing, were presented to Messrs. R. A. Bradley and A. Southgate (graduates) for papers submitted on technical subjects during the session.

At a meeting of the Buenos Aires Association of the Institution of Civil Engineers, held on November 17, Mr. H. N. Bassett, Chemist to the British-Argentine Railway Committee, delivered a lecture on "Chemistry and Civil Engineering." Mr. W. R. J. Murray, Stores Superintendent, B.A.G.S. and B.A.W.R., Chairman of the association, presided.

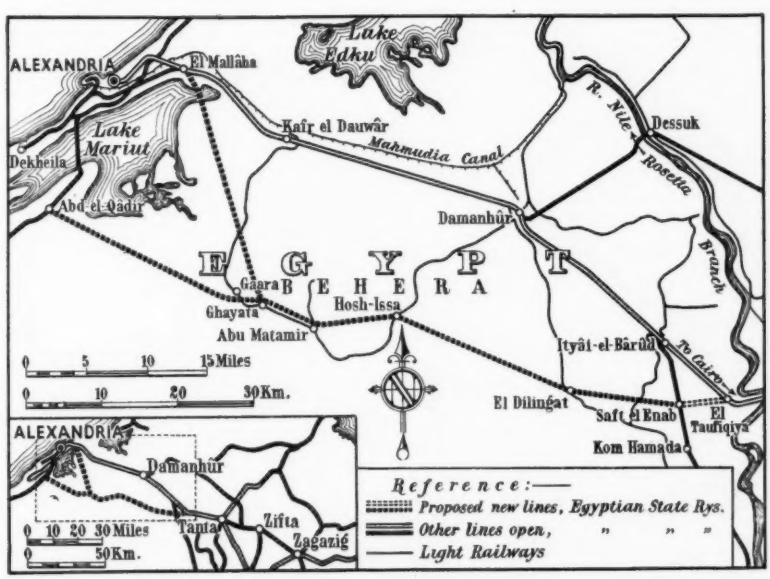
The annual general meeting of the Argentine and River Plate Centre of the Institute of Transport was held in Buenos Aires on November 24, under the presidency of the Chairman of the centre, Mr. C. R. S. Harris, Director-General, B.A.G.S. and B.A.W.R., who briefly reviewed the year's work and mentioned that the centre now numbered 215 members, an increase of two over last year. He also announced that permission had been obtained from the London council of the institute to hold the examinations for graduates and associate members in Buenos Aires in April next, simultaneously with those in London. The present committee was re-elected *en bloc* as follows:—

Chairman: Mr. C. R. S. Harris; Vice-Chairmen: Messrs. G. C. Bonner and T. C. S. Haslam; Hon. Secretary: Mr. R. W. Walker; Hon. Treasurer: Mr. J. A. Meelboom; Members: Messrs. E. A. Richards, A. S. Matthews, H. G. Beckwith, F. A. Bottomley, K. Marshall, and F. C. Egerton. Messrs. Deloitte, Plender, Griffiths & Co. were re-appointed honorary auditors.

EGYPT

The Behera Relief Line

With reference to lines to be laid in connection with the Anglo-Egyptian Treaty, it has recently been decided that instead of the doubling of the Tanta—Zifta—Zagazig line, a new line known as the Behera relief line, shall be constructed. This will take off from the Cairo—Alexandria main line at El Taufiqiya, pass over the Ityâi El Bârûd line at Saft el Enab, and rejoin the main line at El Mallâha after serving El Dilingat and Hosh Issa. An extension of this line will be laid to join the Western Desert line at Abd-el-Qâdir. This new line, which will be double from El Taufiqiya to Saft el Enab, and single thereafter, will relieve the Cairo—Alexandria main line of much of its goods traffic, and will also open up a district hitherto not served by the State Railways.



Map showing the general route to be followed by the Behera relief line, Egypt

BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table for September, 1938, as compared with September, 1937, compiled from the Ministry of Transport Statement No. 226

Description	Great Britain*	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.
PASSENGER TRAIN TRAFFIC—					
Number of pass. journeys (ex. season ticket holders)	103,336,309	7,532,653	15,015,811	24,718,267	18,941,368
Increase (+) or decrease (−)	− 7,633,437	− 767,190	− 1,784,789	− 2,380,709	− 607,799
Passenger receipts (excluding season ticket holders)	£5,234,428	£708,819	£1,062,700	£1,744,789	£1,144,565
Increase (+) or decrease (−)	+ £82,722	+ £27,304	− £5,095	+ £72,600	+ £9,748
Season ticket receipts	£986,643	£67,044	£177,787	£250,321	£334,405
Increase (+) or decrease (−)	− £35,662	− £3,631	− £2,587	− £15,856	− £5,309
Parcels and misc. traffic receipts (excluding parcels post)	£1,095,912	£203,459	£333,871	£412,830	£128,581
Increase (+) or decrease (−)	+ £20,146	− £418	+ £17,470	− £1,029	+ £6,326
FREIGHT TRAIN TRAFFIC—					
Freight traffic (tons) (excluding free-hauled)	19,791,377	4,887,518	8,884,144	9,224,692	1,225,332
Increase (+) or decrease (−)	− 3,804,583	− 769,566	− 1,727,441	− 1,609,435	− 104,356
Net ton-miles (excluding free-hauled)	1,167,679,536	221,876,327	388,692,433	475,752,942	51,077,559
Increase (+) or decrease (−)	−199,947,490	− 34,159,378	− 73,580,941	− 81,327,825	− 4,840,437
Average length of haul (miles) (excluding free-hauled)	59·00	45·40	43·75	51·57	41·68
Increase (+) or decrease (−)	+ 1·04	+ 0·14	+ 0·19	+ 0·15	− 0·37
Freight traffic receipts	£6,762,930	£1,222,000	£2,195,882	£2,752,000	£387,908
Increase (+) or decrease (−)	− £694,872	− £67,700	− £262,549	− £320,000	− £13,952
Receipts per ton-mile	1·390d.	1·32d.	1·36d.	1·39d.	1·82d.
Increase (+) or decrease (−)	+ 0·081d.	+ 0·11d.	+ 0·08d.	+ 0·07d.	+ 0·10d.
Freight train-loads: Average train-load (tons)	122·79	129·19	126·63	120·98	99·38
Increase (+) or decrease (−)	− 8·92	− 8·80	− 9·96	− 8·88	− 4·64
Net ton-miles—					
Per train engine-hour	979·36	1,042·86	1,026·01	948·15	769·32
Increase (+) or decrease (−)	− 7·11	− 1·91	− 14·79	+ 1·72	− 25·55
Per shunting-hour	868·78	768·95	950·12	922·41	563·61
Per total engine-hour	460·38	442·60	493·30	467·55	325·30
Net ton-miles per route-mile per working day	2,582	2,616	2,729	3,041	1,092
Increase (+) or decrease (−)	− 426	− 381	− 498	− 506	− 89
Wagon-miles. Total	343,093,393	63,350,450	120,530,344	142,207,843	16,713,470
Increase (+) or decrease (−)	− 39,537,292	− 6,253,695	− 14,114,118	− 17,550,311	− 1,268,975
Percentage of loaded to total	67·56	68·68	65·03	69·15	68·10
Wagons per train. Total	33·89	34·07	34·57	33·78	30·54
Increase (+) or decrease (−)	− 0·85	− 0·86	− 0·68	− 0·95	− 1·19
Loaded	22·89	23·40	22·48	23·36	20·80
Empty	11·00	10·67	12·09	10·42	9·74
Train-miles. Coaching—Per train-hour	15·39	14·39	14·58	14·66	18·25
Per engine-hour	12·29	11·38	11·18	11·19	15·44
Train-miles. Freight—Per train-hour	9·40	9·81	9·47	9·22	9·42
Per engine-hour	3·75	3·44	3·95	3·86	3·23
Engine miles. Tota	48,597,229	7,689,089	13,361,838	18,019,525	6,764,331
Increase (+) or decrease (−)	− 1,492,047	− 271,294	− 561,406	− 652,361	+ 88,811
Mileage run by engines. Total train-miles—					
Coaching	25,720,715	3,448,334	5,973,902	8,513,714	5,161,772
Freight	10,122,883	1,859,682	3,486,298	4,210,427	547,214
Engine-hours in traffic. Total	4,987,986	867,383	1,488,831	1,927,661	521,695
Increase (+) or decrease (−)	− 351,108	− 58,345	− 119,705	− 158,776	− 5,579
Shunting miles per 100 train-miles—					
Coaching	7·17	6·94	6·66	7·48	7·80
Freight	70·16	83·73	65·26	64·22	91·44

***Passenger Traffic Statistics*: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—September, 1938**

Subject	Great Britain	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.	Cheshire Lines	Liverpool Overhead	L.P.T.B.†	Mersey
Full fares—									
Pass. journeys	30,398,349	702,836	977,573	1,389,585	2,921,589	14,738	159,940	23,389,717	79,601
Gross receipts	£1,099,826	£119,163	£172,092	£195,489	£266,512	£3,191	£1,714	£323,933	£1,381
Receipts per pass.	8·68d.	40·69d.	42·25d.	33·76d.	21·89d.	51·96d.	2·57d.	3·32d.	4·16d.
Reduced fares—									
Excursion and week-end—									
Pass. journeys	41,511,280	4,407,122	9,426,067	14,870,773	9,172,412	397,430	103,906	1,482,550	637,402
Gross receipts	£3,228,609	£481,312	£713,269	£1,252,349	£666,444	£29,466	£1,212	£33,713	£10,128
Receipts per pass. journey	18·67d.	26·21d.	18·16d.	20·21d.	17·44d.	17·79d.	2·80d.	5·46d.	3·81d.
Workmen—									
Pass. journeys	27,016,213	1,834,529	3,645,594	7,161,347	5,883,908	254,322	220,642	6,877,114	255,942
Gross receipts	£409,579	£28,183	£61,897	£121,172	£99,970	£4,512	£1,909	£78,672	£2,264
Receipts per pass. journey	3·64d.	3·69d.	4·07d.	4·06d.	4·08d.	4·26d.	2·08d.	2·75d.	2·12d.
Other—									
Pass. journeys	4,369,849	579,076	955,623	1,279,160	960,597	36,689	47,692	413,915	12,592
Gross receipts	£451,443	£68,690	£106,673	£154,576	£108,441	£3,802	£319	£4,095	£216
Receipts per pass. journey	24·79d.	28·47d.	26·79d.	29·00d.	27·09d.	24·87d.	1·61d.	2·37d.	4·12d.
Total—									
Pass. journeys	103,336,309	7,532,653	15,015,811	24,718,267	18,941,368	703,379	532,180	32,163,296	985,537
Gross receipts	£5,234,428	£708,819	£1,062,700	£1,744,789	£1,144,565	£41,178	£5,154	£440,413	£13,989
Receipts per pass.	12·16d.	22·58d.	16·99d.	16·94d.	14·50d.	14·05d.	2·32d.	3·29d.	3·41d.

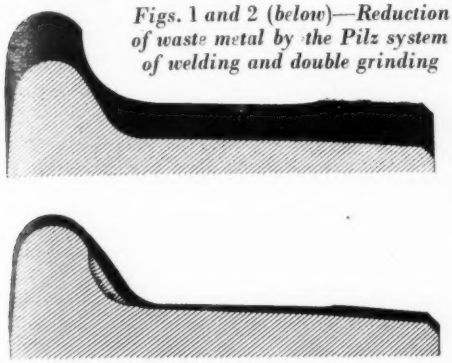
* All standard gauge railways

† Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway

RECONDITIONING WHEEL SETS

German economy method employing a welding and double grinding process

THE growth of the self-sufficiency ideal in Germany, and the necessity for forced economies to put this into practice, have resulted in close attention being devoted to the question of costs incurred in reconditioning and replacing railway rolling stock tyres. According to a recent investigation, about 1 cwt. of metal is removed in chips by re-turning a single pair of tyres. This is due to the fact that the hardened surface of the tyre,



Figs. 1 and 2 (below)—Reduction of waste metal by the Pilz system of welding and double grinding

which is equal to about 220 Brinell, presents a difficult machining problem, and involves an extra deep cut in order that the tool may get below the work-hardened surface. This naturally involves the removal of considerably more metal than is absolutely necessary for the mere correction of tyre wear. According to this investigation, in the case of the State Railway rolling stock, wheel tyres have to be reconditioned after about 60,000 miles running, and it is found that the average wear is 4 mm. measured in the centre of the tread.

The hardened condition of the worn tyre and the lateral wear on the inside of the flange make it necessary for 5 to 10 mm. to be machined off in order to correct the profile, so that the thickness of each tyre is reduced on this account by an average of 7·5 mm., as shown in Fig. 1. The thickness of a tyre when new is 60 mm., and when, in consequence of wear and successive machining this thickness is reduced to 30 mm., the tyre is scrapped and replaced by a new one, as the practice of using an intermediate ring is not adopted on the German railways. The life of a tyre is therefore as follows: during the first 60,000 miles the original thickness of 60 mm. is reduced to 56 mm., and further reduced by machining to 48·5 mm.; in the second 60,000 miles it is reduced by wear to 44·5 mm. and by machining to 37 mm.; in the third 60,000 miles it is reduced by wear to 33 mm., at which point it is replaced by a new tyre. The weight of the two tyres is approximately 9 cwt., and about 1 cwt. is lost on each re-turning operation.

In the Pilz system of welding and double grinding worn wheel sets as used in the Reichsbahn shops at Brandenburg, the loss of metal on each reconditioning is considerably reduced, as will be seen from Fig. 2. In this system of double grinding after each period of 60,000 miles, the stock removal is only 0·75 mm., the worn flange having been previously built up by welding as shown. On this basis, according to recent calculations, taking as a basis 10,000 wheel sets per annum, the weight of new tyres as compared with the re-turning process is reduced from 1,125 to 237 tons, and the total cost of new

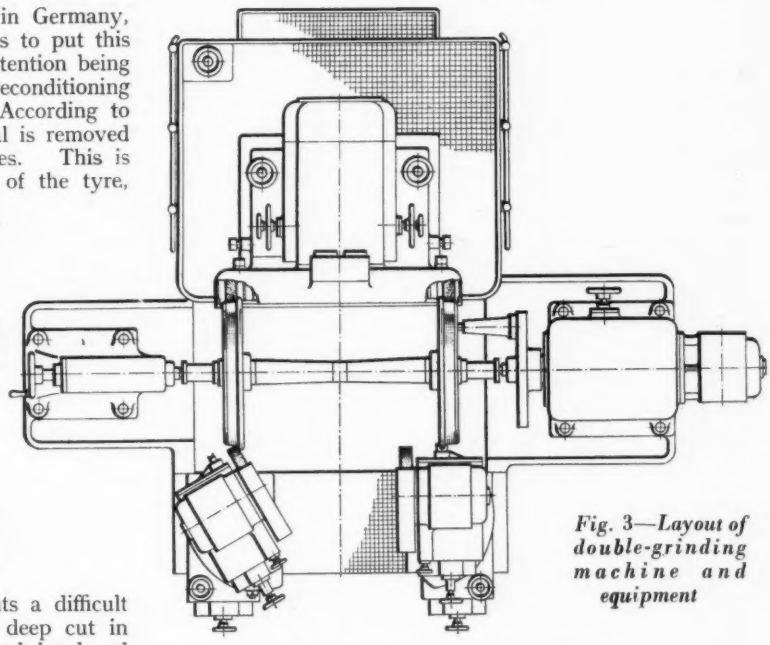


Fig. 3—Layout of double-grinding machine and equipment

tyres and machining from £20,132 to £7,523 (at par exchange). Against any other system of wheel grinding this method of grinding both tyres simultaneously with a single wheel is claimed to effect an economy approaching 50 per cent. in time and wages.

The grinding machine and equipment for this process are made by the Vulkanhammer Maschinenfabrik, of Neukolln, Berlin, and are shown in Fig. 3; the diameter of the main segmental grinding wheel is 5 ft. 4 in. The method of grinding both tyres simultaneously is claimed to ensure correct profile and diameter as well as reducing setting-up time. In the same operation the worn flanges previously built up by welding are ground by means of the front grinding attachments mounted on separate cross slides, a suitable form tool being provided for rounding off the outer diameter of the flange which is not effected in the grinding operation. The various operations performed on the machine are shown in Fig. 4.

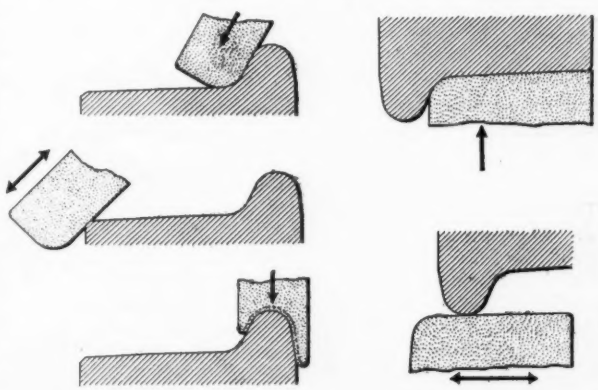


Fig. 4—Various grinding operations performed

PROBLEM OF SMOKE DISPOSAL FROM BUILT-OVER STATION

The Chicago Post Office is built over the Union station, and, as the latter is steam worked, a great problem of disposal of the smoke and protection of the underside of the flooring is involved

CHICAGO Union station is steam worked and has 15 platform lines, over which there are some 2,000 train movements daily. Despite the smoke and fumes thus created, the great Post Office Building —796 ft. long by 344 ft. wide—is built directly over the station. To carry off the smoke, cast iron troughs over the tracks open directly into a vast plenum chamber, extending over the whole area beneath the building, and the fumes are drawn thence by fans into numerous stacks leading to the roof 12 storeys above. Within a period of four years no fewer than 750 tons of cinders and soot sludge had collected in this chamber to a maximum depth of 16 in.

The chamber was formed by a 4-in. reinforced concrete floor suspended from the ground-floor members of the building by 14,000 ¾-in. chromium-steel rods having a high degree of corrosion resistance, according to laboratory tests; the underside of the chamber floor is 17 ft. above rail level. As the expanse of this floor is about 5 acres the clearing out of the 750 tons of sludge was no light task, but when it was accomplished, the suspension rods were found to be so seriously corroded that it was deemed advisable to shore up the floor immediately. In some instances as many as 11 out of 12 rods supporting separate bays were eaten completely through, and many of the clamps and brackets also. Also a considerable part of the concrete sheathing for protecting the ground floor structural members was found to be seriously affected and ineffective. In many places this fireproofing was found to be sagging in festoons or entirely absent.

Replacing Supports and Protecting Floor

As a result of these disclosures it was decided to renew all the rods and brackets supporting the smoke troughs, and every alternate floor supporting rod, regardless of condition, in addition to all rods that had been reduced in cross sectional area by 25 per cent. and upwards. The new rods used are of ¾-in. dia. S.A.E. X-1335 steel of 80,000 lb. tensile strength, and are encased entirely in a special plastic compound held in position by wood pulp casings similar to those used for underground cable work, but in two halves longitudinally for application. The plastic compound consists of 80 per cent. Wurtzilite and 20 per cent. Chinawood oil.

In the original floor of the chamber there was insufficient slope to enable the condensed vapour to run off to the drainage outlets provided, but this has now been remedied by resurfacing it entirely with a water- and acid-proof material consisting of 1 part cement, 3 parts emulsified asphalt, 5 parts coarse Waylite, 3 parts fine Waylite, and 3 parts Vermiculite, with a multiple-pitched surface to ensure quick drainage.

Some trouble was experienced in mixing and applying this material at first, but it was eventually applied by forcing under compressed air the mixed dry aggregate and asphalt through separate hose lines to a common cement gun nozzle where they were mixed and applied to the floor. Though these materials were conveyed over distances up to 700 ft. by this method, no difficulties were experienced, and it was found possible to apply an average quantity of 85 cu. yd. of the material in an eight-hour day.

Repairing Underside of Post Office Floor

The repairs to the protective concrete casing of the ground floor structural members was carried out by several different methods according to the extent of the damage and to local conditions. Where the protection had fallen away completely the Gunite method was adopted. Over the smoke troughs where the concrete had been worn away by erosion repairs were effected by the Guntex method. For this, a primary coat of emulsified asphalt was applied with an air gun, and afterwards a finishing coat consisting of 80 per cent. silica sand and 20 per cent. emulsified asphalt was similarly applied.

Altogether some 19 acres of concrete ceiling, walling, and beam surfaces were cleaned, 1,500 patches were applied by the Gunite method, the reinforcing beneath the bottoms of 17 beams was entirely replaced, and some 111,900 sq. ft. were covered by the Guntex method. In addition extra drains were provided to carry off the sludge, and the ventilating capacity was more than doubled.

The whole work, which took about two years, was very complicated and difficult. Every man employed had to work in a gas mask in the earlier work, and later, working areas had to be segregated by bulkheads, and working chambers thus created had to be supplied with forced ventilation supplied through Ventube flexible ducts.

The cost of the work was borne by the Federal Government under its agreement with the Union Station Company to maintain an adequate smoke exhaust system. The Union Station Company, however, carried out the work as both engineering consultant and general contractor. A more detailed and illustrated description of this work is given in our American contemporary, the *Railway Age* for September 10.

Railways and Air Raid Shelters

THE Air Raid Precautions Department of the Home Office announced on January 16 that arrangements had been made between the Department and the steel industry for the supply of the steel shelters to be provided by the Government for the protection, in their own homes, of occupants of small houses against the possibility of blast and splinters from bombs or the falling debris from damaged buildings. An initial order for 120,000 tons of steel sheets, channels and accessories sufficient to make 400,000 shelters each capable of holding four or five persons has been placed, and further orders will follow as soon as the productive capacity of the steel industry comes into full play. Conveyance of the material from the steel works and distribution to the households will be carried out by a special organisation which is being set up by the main-line railway companies, acting in liaison with the Home Office, the manufacturers, and the associations of local authorities.

LARGE WELDED GERMAN BRIDGES

Notes on the construction of the Rügendamm Bridges between Stralsund and Rügen Island

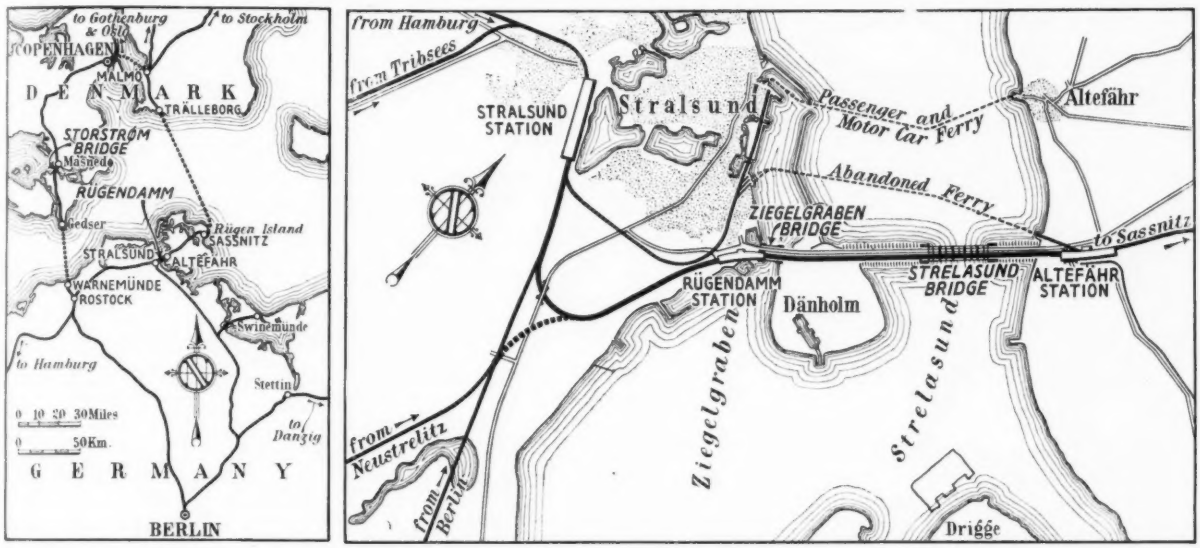
THE official opening on October 5, 1936, of the railway connecting the Island of Rügen in the Baltic with the German mainland at Stralsund marked the completion of a project, particulars of which we have reported from time to time during the progress of the work.* The accompanying illustrations† afford further information on some of the more remarkable features of the bridges.

The need for a rail connection between Stralsund and Rügen had been increasingly apparent for many years past, but apart from the natural difficulties, various circumstances delayed the execution of plans. A rail ferry between the mainland and the island was inaugurated in 1883. The first vessel in this service was capable of carrying three goods wagons, but passengers had to change and their luggage had to be unloaded. Nevertheless 90,000 people (50 per cent. more than expected) used the ferry during the first twelve months and traffic increased rapidly during following years.

The desirability of a fixed rail connection, already evident, was greatly increased by schemes for an improved service between Germany and Sweden with through corridor express trains to the port of Sassnitz on Rügen. Such through running between Berlin and Sassnitz was established in 1897, starting with a ferry vessel 61·8 metres (202 ft. 9 in.) in length, capable of carrying three eight-wheeled coaches.

During the years 1912 and 1913, borings were undertaken on a large scale and plans were completed for a high-level bridge, with 27 metres (88 ft. 7 in.) clearance above mean water level, a centre span of 160 metres (525 ft.), and many side spans exceeding 100 metres (328 ft.) each, making a total length of 1,200 metres (3,937 ft.).

No further progress was made until after the war. The idea of a high-level bridge was then abandoned and, in 1929, fresh plans were begun leading to the work as it now stands. As shown in the general plan, a considerable part of the width of the straits has been closed by embankments, and the two remaining openings spanned by plate-girder bridges, one a bascule bridge over the Ziegelgraben shipping channel, the other—the Strelasund bridge—with continuous plate girders over the wider arm of the sea between the islands of Dänholm and Rügen. In both instances, there are two independent structures on the same piers, a single-line railway bridge and a road bridge. The latter is of riveted construction, and the railway bridge is an all-welded structure of St 37 steel (mild steel of tensile strength not less than 37 kg. per sq. mm. or 23½ tons per sq. in.). The roadway is 6 metres (19 ft. 8¼ in.) wide throughout, and the footway, on one side only, is 2·5 metres (8 ft. 2½ in.) wide on the embankment and 2·25 metres (7 ft. 4½ in.) wide on the bridges. The two railway bridges are by far the longest plate-girder railway bridges yet built by welding.

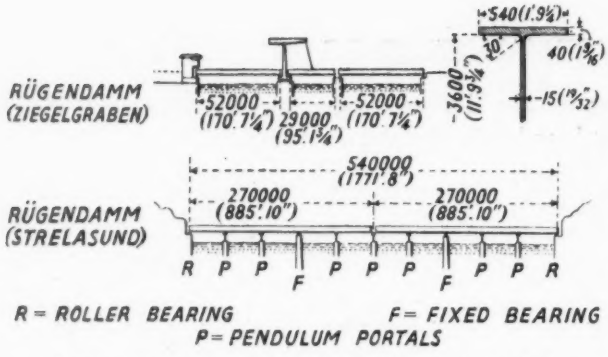


Left: Key plan showing main routes between Berlin and Sweden
Right: General plan showing the position of the Rügendamm bridges and associated routes

The economic justification for this great undertaking lies in the fact that it enables the through railway service Stralsund—Sassnitz—Trälleborg—Malmö to compete with the other connections with the Scandinavian countries. The cost of the ferry service to Rügen Island was very considerable, about 1,350,000 Marks (£67,500 at 20 Marks = £1) per annum, and at 1·80 marks per axle-kilometre (about 2s. 11d. per axle-mile) the cost was 12 times that for ordinary railway operation. The building of a tunnel had been considered but the estimates showed it to be economically impracticable for, owing to the unsafe ground, the floor of the tunnel would have had to be at least 30 metres (98½ ft.) below mean water level. The

* THE RAILWAY GAZETTE, September 27, 1935 (page 492), and April 3, 1936 (page 654)

† From a commemorative publication "Der Rügendamm," reprint from *Die Reichsbahn*, No. 40, 1936



General arrangement and leading dimensions of the welded railway bridges over the Ziegelgraben and Strelasund (Rügendamm)

total cost of the works actually carried out was about 25,900,000 Marks (£1,295,000), of which 15,000,000 Marks (£750,000) is chargeable to the railway and the rest to the roadway. The expenditure of labour amounted to 600,000 man-days, 2,600,000 cu. metres (3,400,000 cu. yd.) of ground were moved, and 11,800 metric tons (11,600 tons) of steel and 48,000 cu. metres (62,800 cu. yd.) of concrete were used.

Because of the unfavourable nature of the ground, extensive excavating and filling operations had to be undertaken before the construction of the bridges could be begun. Thus, in building the embankment on the mainland, leading to the Ziegelgraben, it was necessary to go to a depth of 5 to 10 metres (about 16½ to 33 ft.) through peat and mud to reach firm ground, consisting of boulder-marl. In the Ziegelgraben itself, about 5 m. (16½ ft.) of mud had to be removed, below which there was peat, the firm boulder-marl lying 10 to 15 m. (about 33 to 49 ft.) below low-water level.

Both in the Ziegelgraben and in the Strelasund, it was necessary first to remove the 5 m. (16½ ft.) thickness of mud for a breadth of 50 m. (164 ft.). About 700,000 cu. m. (915,600 cu. yd.) of mud was pumped on to the Drigge dumping ground, and further dumping sites were selected at the north end of Dänholm Island and on the mainland south of Stralsund. Sand for filling in the embankment trench was dredged from near the Drigge dumping ground, loaded into hopper barges and subsequently deposited in the trench. About 1,000,000 cu. m. (1,308,000 cu. yd.) of sand were transferred in this way. Altogether, for the building of the embankment, 2,500,000 cu. metres (3,270,000 cu. yd.) of mud had to be removed by suction and deposited elsewhere by aid of long pipe lines. Incidentally, considerable areas of valuable new land were built up by the hydraulic dumping operations on the shores of the mainland and islands.

The most varied methods had to be used in establishing the foundations of the bridges, the geological nature of the sea bottom varying from pier to pier. Pile foundations were built in the Ziegelgraben using tubular steel piles up to 30 metres (98 ft. 5 in.) in length, closed at the bottom and filled with reinforced concrete. The two piers for the abutments of the Strelasund bridge had to be of specially strong construction; one of them has a caisson 18 metres (59 ft. 1 in.) in width with cutting edges lying 22·35 metres (73 ft. 4 in.) below mean water level. The pendulum supports of the Strelasund bridge, which transmit their loads vertically, could be supported on much lighter foundations; these were built by the compressed-air method.

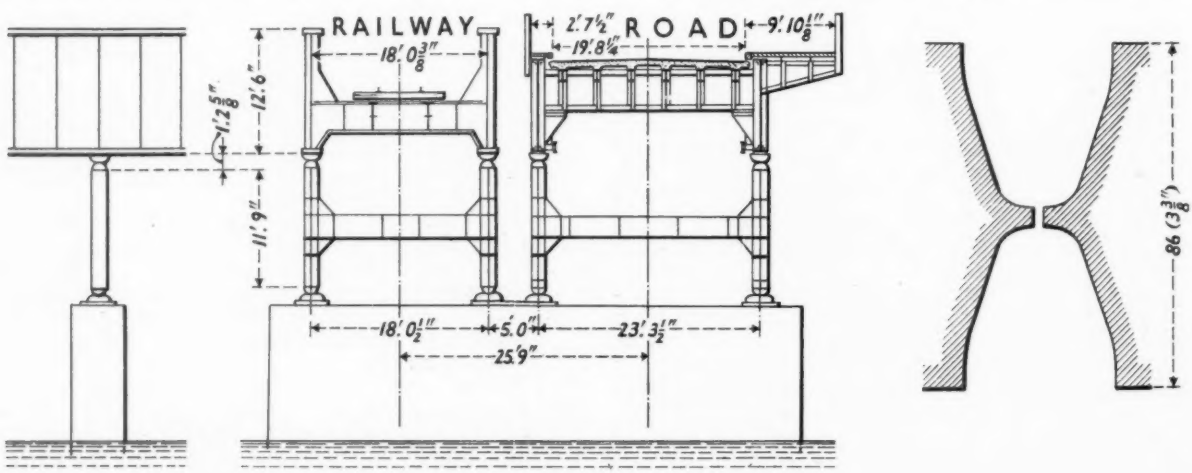
It is remarkable that a good use has been found for the old ferry equipment with its costly mechanical devices. This has been transferred to Swinemünde, where it has effected considerable improvements in the ferry service. Another interesting fact is that a large part of the extensive earthworks was carried out by manual labour, in order to provide as much employment as possible, although this added about 50,000 Marks (£2,500) to the cost. In the later stages, dredging was resumed.

The daily performances in building the embankment were approximately:—

Dredging mud, 8,000-10,000 cu. m. (10,460-13,080 cu. yd.).
Hydraulic deposition of sand, 4,000-5,000 cu. m. (5,230-6,540 cu. yd.).

After completing the dumping, sheet piling was driven along the sides, to protect the base of the embankment against erosion by the sea.

Originally, it was intended to sink the foundations for the piers of the Ziegelgraben bridge by compressed air, but pile-foundations were adopted on account of the unfavourable ground conditions. Hollow cylindrical steel piles were used, 400 mm. (1 ft. 3¾ in.) in diameter, built from 0·25 per cent. copper-steel plate 10 mm. (⅜ in.) in thickness. The point of each pile consisted of a steel casting to which the tubular shell was welded. These piles have each to carry a calculated load of 60 metric tons (59 tons), and for greater safety each is provided with an internal spiral reinforcement of such dimensions that,



Pendulum support and double U joint

The Ziegelgraben bridge, showing the lifting centre span

even if the steel shell rusts away, there will remain a reinforced concrete pile capable of carrying the full load. The steel reinforcement of these piles was made in 6-metre (19 ft. 8¼ in.) lengths and then inserted in the shell, strip-iron rings being welded on for stiffness.

In the design of the steel bridge structures themselves, special importance was attached to giving passengers in trains and road vehicles a clear view. The upper edges of the plate girders in the railway bridges were therefore kept down to about the height of the lower edge of the coach windows, and the plate girders of the road bridges were made yet lower to allow for the lower level of motor car windows.

The Ziegelgraben bridge is remarkable not only for its dimensions, which set up a new level of achievement in railway bridges with welded plate girders, but also by reason of the manner of its construction and transport. The plate girders, 52·80 metres (173 ft. 2½ in.) in length and 3·68 metres (12 ft. 0⅞ in.) in depth, were each carried by railway in one piece, weighing 42 metric tons (41 tons 7 cwt.), from the workshops near Dortmund to Stralsund. For this purpose, the structural steel firm concerned built special bogies to keep within the standard loading gauge. The transport could be effected only during week-ends. On arrival at Stralsund, the girders were loaded on vessels which carried them to the site, and they were then placed on the prepared supports. The bascule bridge at the centre opening of 29 metres (95 ft. 2 in.) is also a remarkable achievement in the construction of welded bridges.

Bascule bridges over the Ziegelgraben, rail bridge being opened for shipping

The dimensions of the Strelasund bridge exceed those of the Ziegelgraben structure, the maximum single span being 54 metres (177 ft. 2 in.), compared with 52 metres (170 ft. 7 in.). Moreover, the plate girders are continuous over five openings, probably constituting the best performance yet accomplished in welding technology applied to bridge building. The contract for each half of the bridge was awarded to a separate firm, free choice of the method of construction being allowed. Here again, the railway bridge was welded and the road bridge riveted, structural steel St 37 (minimum tensile strength 37 kg. per sq. mm. or 23½ tons per sq. in.) being used throughout. The girders are continuous over five 54-metre (177 ft. 2 in.) openings, with roller bearings at the two end abutments and pendulum supports on the intermediate piers.

A comparison with the Danish Storstrøm bridge* is not without interest, arms of the sea being spanned in both cases by plate girder structures. In the Danish bridge, these are stiffened with bowstring trusses at the long-span navigation channels. The masonry piers of the Storstrøm bridge are built nearly up to the steel superstructure, which, intermediately, is carried on supports of the same design, in principle, as the pendulum supports used in the Strelasund bridge. The special virtue of these pendulum supports is that the weight is always directed through them vertically on to the masonry pier, any deflective or expansive movement resulting in the pendulum support moving slightly on its curved bearing points.

The firm of Dörnen built the half of the bridge ter-

* Described in THE RAILWAY GAZETTE, October 22, 1937 (page 692)

minating on the island of Rügen. As there was no large building space available, the following method was adopted. The first pair of plate girders were welded to a length of 61 metres (200 ft. 2 in.) in the shops at Dortmund. Successive pairs of girders were made 54 metres (177 ft. 2 in.) in length, and the closing piece 47 metres (154 ft. 2 in.). The butt joints to be welded on site were thus brought 7 metres (23 ft.) beyond the points of support, *i.e.*, in planes of minimum bending moment. Flanges and webs were respectively welded together with double U-joints on the site, the flange joints being on lines at 45 degrees to the length of the bridge, in accordance with the results of fatigue tests and the rules of the German State Railway based thereon. The method of joining the web plates is also interesting. Normally, the web is 16 mm. ($\frac{5}{8}$ in.) thick, but for a length of 1·50 metres (4 ft. 11 in.) in the neighbourhood of the flange joint it is reinforced to a thickness of 50 mm. ($1\frac{31}{32}$ in.). In general, the Dörnen method of construction adheres to the principle of doing as much welding as possible in the workshops, taking the largest possible pieces to the site, and doing there as little welding as possible.

The other half of the welded bridge was built by the Krupp-Rheinhausen concern. This end of the structure connects with the island of Dänholm where ample space was available for constructional purposes. The procedure followed was, therefore, quite different from the Dörnen method. The welded main girders were delivered in considerably shorter lengths, viz., 37 to 44 metres (121 ft. 5 in. to 144 ft. 4 in.), whereas each span is 54 metres (177 ft. 2 in.). These lengths of girders were then butt-welded together on site, using rotary jigs. Double U butt joints were completed in the 86 mm. (nearly $3\frac{7}{16}$ in.) flanges, and the girders were then turned to the horizontal position and the 1·5-metre (4 ft. 11 in.) lengths of web plate were welded in. Roller bearings were used to permit free longitudinal movement and reduce the shrinkage stresses due to welding to a minimum. Finally, the whole superstructure, $5 \times 54 = 270$ metres (885 ft. 10 in.) in length, weighing about 1,200 metric tons (1,181 tons), was supported by 23 trucks and pulled along the bridge by electric winches (Fig. 5). The piers were specially braced to withstand the horizontal thrust of about 16 metric tons (15 tons 15 cwt.) set up by rolling friction during this operation.

Above : Joining lengths of welded plate girders for the Strelasund bridge, using rotary welding jigs. (Krupp method)

Right : Part of the welded superstructure (885 ft. 10 in. in length) of Strelasund bridge ready for haulage into position

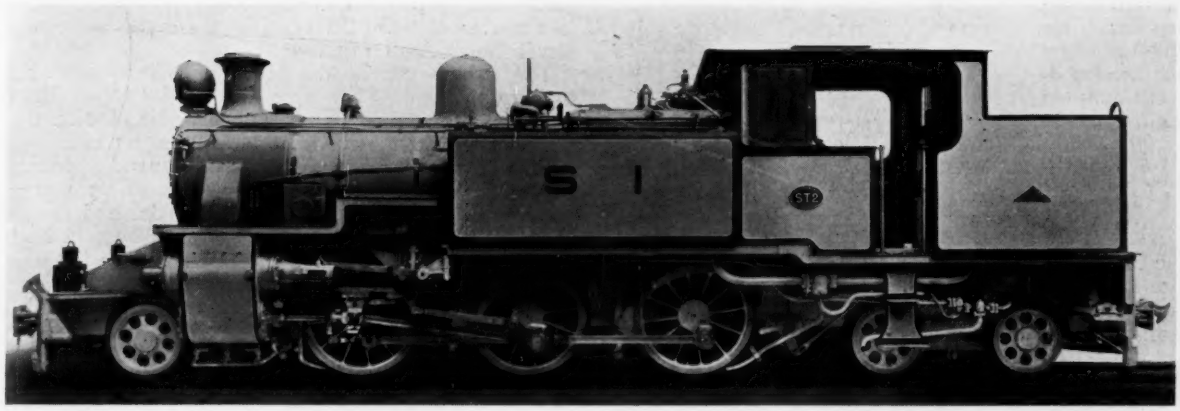
The results of X-ray inspection of the welded joints are very interesting. This method of testing is prescribed for butt-welded joints of the first grade, *i.e.*, those designed on the assumption of the maximum permissible stress. As a result of the X-ray examination, re-welding for the correction of defects was necessary in:—

3 per cent. of the flange joints welded on site.
6 per cent. of the flange joints welded in the workshops.
10 per cent. of the web joints welded on site.
14 per cent. of the web joints welded in the workshops.

These figures indicate that welding on site was carried out yet more carefully and successfully than in the workshops. The defective parts were removed and re-welded, after which no fault was discovered on re-examination by X-rays.

METRE-GAUGE 2-6-4 TANK LOCOMOTIVES, SOUTH INDIAN RAILWAY

Two of these engines, recently completed by Nasmyth, Wilson & Co. Ltd., formed the firm's last order for locomotives



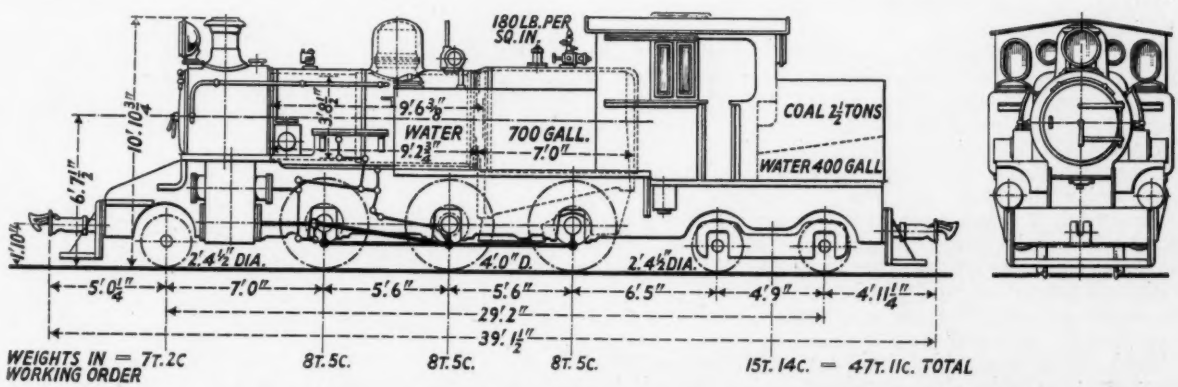
WE illustrate herewith a 2-6-4 type tank locomotive, one of an order for two recently built by Nasmyth, Wilson & Co. Ltd., under the supervision of Messrs. Robert White & Partners, consulting engineers, for service on the South Indian Railway. The engines have outside cylinders driving the middle pair of coupled wheels, and steam distribution by Walschaerts gear actuating piston valves located above the cylinders. The boiler has a copper inner firebox with copper water space stays, steel tubes, and Melesco superheating apparatus with 13 elements. Longitudinal stays are dispensed with, the upper areas of the front tube plate and firebox back plate being stayed by means of plate girder stays. The front two rows of roof stays are of the Flannery type. The grate is of the rocking and drop pattern, steam- and hand-operated.

The connecting rod big ends and the coupling rods are fitted with floating bushes and lubricated by means of grease nipples. The coupled axleboxes are of solid gunmetal and fitted with grease nipples for lubricating the cheeks; nipples are also fitted to the gudgeon pins, valve gear, coupled wheel hubs, hind bogie pivot, slide and axlebox cheeks, and brake gear. Owing to weight restrictions, all parts have been made as light as possible, consistent with safety, and for this reason the tanks and bunker are of welded construction.

The leading particulars are as follow:—

Cylinders (2), dia.	14 in.
,, stroke	20 in.
Coupled wheels, dia.	4 ft. 0 in.
Bogie wheels, dia.	2 ft. 4½ in.
Wheelbase, rigid	11 ft. 0 in.
,, total	29 ft. 2 in.
Evaporative heating surfaces, tubes	518 sq. ft.
,, ,, ,, firebox	91 sq. ft.
,, ,, ,, total	609 sq. ft.
Superheating surface	121 sq. ft.
Combined total	730 sq. ft.
Grate area	13 sq. ft.
Boiler pressure, per sq. in.	180 lb.
Tractive effort (at 85 per cent. b.p.)	12,495 lb.
Adhesion weight	24·75 tons.
Ratio of adhesion to tractive effort at 85 per cent. b.p.	4·43
Weight in working order	47·55 tons.
Capacity of tanks	1,100 gallons.
,, bunker	105 cu. ft.

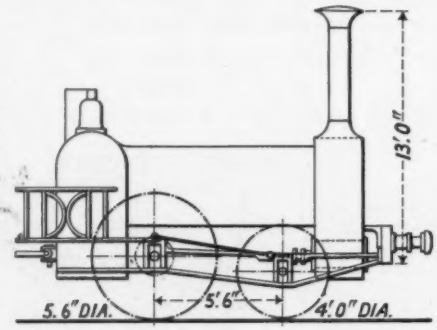
The equipment of the locomotive includes the following components: Ross pop safetv valves, Clyde superior soot blower fitted on the firebox back plate, No. 7 injectors supplied by Gresham & Craven Limited, asbestos lagging,



General arrangement of 2-6-4 tank locomotive for the South Indian Railway

XUM

Super-dreadnought ejector with graduable steam brake valve, Wakefield hydrostatic lubricator, A.B.C. couplers, Stone's electric lighting equipment, and Lambert wet sanding. The locomotives are of further interest in being



The first Nasmyth locomotive: of the 2-2-0 type for the London & Southampton Railway, 1838

the last ever to leave the works of Nasmyth, Wilson & Co. Ltd., who has now ceased locomotive production and is concentrating on other branches of general engineering work including the production of forgings, iron and brass castings, and all classes of riveted and fabricated work. It may further be of interest to note that the material for the first Nasmyth, Wilson locomotive was ordered in May, 1838, so that these locomotives complete exactly 100 years of locomotive building at the Bridgewater Foundry. During this period locomotives of the highest class were delivered to main-line railways all over the world, the first engines built to order being for the London & Southampton Railway in 1838 (railway company's Nos. 28, 29, and 30), whilst the first foreign order was for two locomotives of the 2-2-2 type for the Kaiser Ferdinands Nordbahn of Austria in 1841.

The locomotives for the L. & S. Railway were built to Bury's design. They were of the 2-2-0 type with one pair of 5 ft. 6 in. diameter and one pair of 4 ft. 0 in. diameter wheels; the cylinders were 12 in. by 18 in. The outline drawing reproduced shows the general appearance of the engines. The Austrian locomotives were of the 2-2-2 type, with driving wheels 4 ft. 0 in. and carrying wheels 2 ft. 6 in. diameter; the cylinders were 12 in. by 20 in. These engines were generally similar to the Norris type locomotives as developed for the Birmingham & Gloucester Railway, but were improved by Nasmyth in various ways.

A NEW MOBILE CRANE WITH UNUSUAL FEATURES

WE illustrate herewith a new mobile crane built at the works of Kryn & Lahy (1928) Ltd., Letchworth, Herts. It is being marketed by an associate company, T. C. Jones & Co. Ltd., 93/95, Wood Lane, Shepherds Bush, W.12. The crane is designed for a lift of one ton over a radius of 12 ft., and includes many features never previously available in a petrol crane.

Hoisting and lowering are greatly simplified, being entirely effected by means of a single control lever, so arranged that in its central position all clutches are disengaged and the brake is automatically applied. When lowering, a slight movement of the lever partially releases the brake, and gravity is thus allowed to operate. In the case of a light load or an unloaded hook the otherwise sluggish movement can be greatly accelerated by further movement of the lever in the same direction. By this means the brake is completely released and a reversing clutch engaged with the engine so as to run out the rope at 200 ft. per min. Hoisting, travelling, and slewing motions are independently operated by means of heavy duty friction clutches, all of which are interchangeable; the clutches are fitted with renewable Ferodo linings. The winch is of robust construction and is well suited to withstand the rough or unskilled handling often imposed on this type of crane.

A trouble not infrequently encountered in deep work such as tunnel shafts, is the swinging of the return block and consequent twisting of the falls. This trouble has been entirely eliminated by adopting a single lifting rope together with a large winch drum allowing lifts up to 80 ft. without overlapping of the rope. Maximum lifting speed is approximately 70 ft. per min. Travelling speed is approximately 2 m.p.h.; two of the wheels are driven by heavy roller chain, while the other two are steered from the driver's position on the superstructure. This latter is carried on tapered steel rollers with hook rollers to relieve the central column from any overload. Slewing speed is between 3 r.p.m. and 4 r.p.m.

Hand luffing is provided for by a crank handle and worm gear; the luffing drum can be seen above the winch in the illustration. The standard jib is 18 ft. long and is

constructed of steel channels strongly braced with angles and plates, and welded throughout. Non-standard jibs up to 30 ft. in length can also be supplied. A Lister radiator-cooled petrol engine developing 10 b.h.p. at 1,250 r.p.m. is fitted as standard, transmitting the drive through heavy roller chains and gears of high-tensile steel. A diesel power unit can be provided if desired.

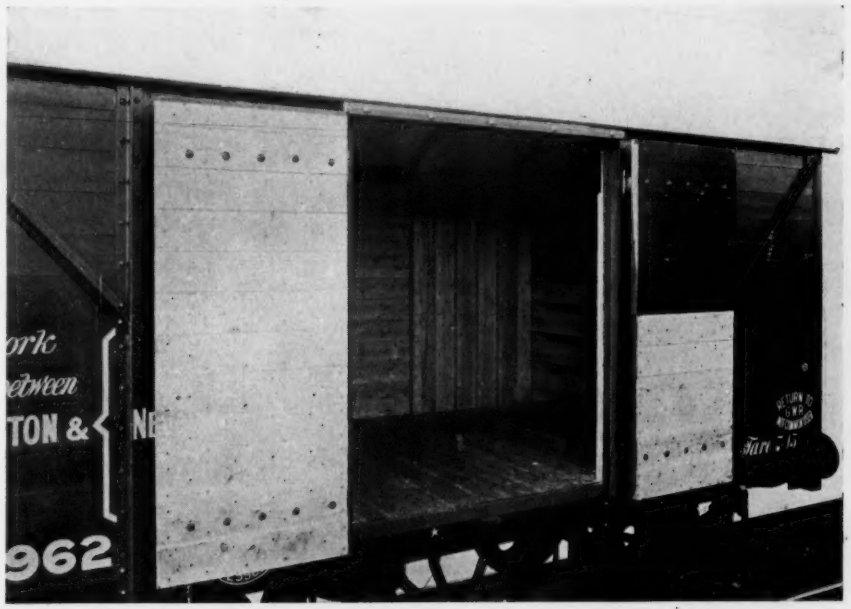
The shafts and axles are throughout mounted on self-aligning ball bearings in dust-proof housings, and all bearings are provided with grease-gun lubrication on the grouped nipple system.

THE USE OF G.W.R. PARTITIONED VANS

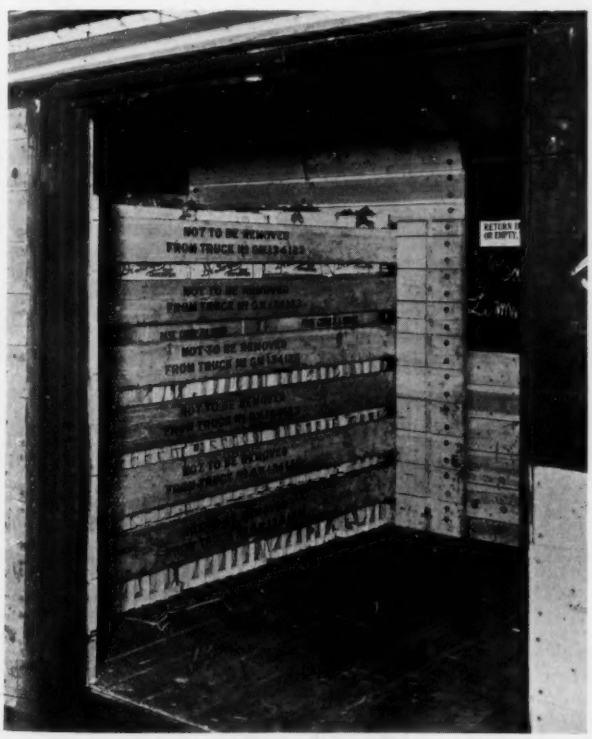
Instructions to the staff as to the correct use of these "Partos" for the greatest benefit to traffic

AS a development associated with the prevention of damage to goods in transit, the G.W.R. decided in the early part of 1935 to introduce partitions in a few covered goods vans. So successful did this experiment prove, that the company arranged in February, 1936, to equip a hundred more vehicles to operate over its system between specific points appropriate to such traffics as eggs, soft fruit, and furniture—traffics which however carefully handled are themselves inevitably susceptible to damage. In our issue of March 6, 1936 (at page 451), we illustrated one of these partitioned vans.

The subject of such vehicles has again come to the fore, as Mr. A. Maynard, Chief Goods Manager, G.W.R., has just issued a circular to the staff on the use of these vans, which are commonly called "Partos."



A G.W.R. covered goods van equipped with slots for 6-board moveable partitions



Correctly stowed load in one of the G.W.R. partitioned vans

This circular strikes a new note in such communications to the staff, for not only is it fully illustra ed, but the wording has been kept in simple and direct language. First of all it explains why partitioned vans were introduced, as follows:—

1.—To prevent movement of goods during transit and thereby avoid damages due to such movement.

2.—To protect fragile goods from damage by contact with other heavier traffic.

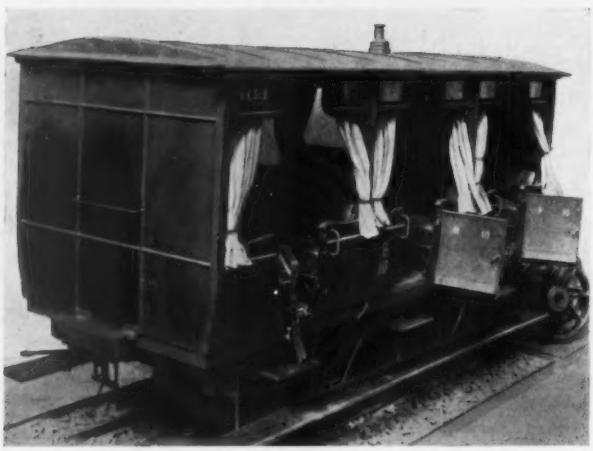
3.—To support incomplete loads and enable goods not occupying the whole space of the van to be stowed in such a way as to permit of their travelling safely.

The circular then describes such vehicles briefly by saying that the partition boards, twelve in number, fitted with iron shoes, form part of the equipment of the van, bear its number, and must accompany the vehicle at all times. When the vehicle is empty the partitions are carried at each end of the truck in the slots provided for the purpose. The walls of the partitioned vans are recessed at intervals enabling the partitions to be inserted at varying distances to suit the load.

Perhaps the greatest interest applies to the simple directions as to how to use "Partos" so that traffic receives the greatest benefit from conveyance in such vans. It is explained that partitions should be removed from the ends of the wagons in every case before loading commences. This is the obvious thing to do, but as the partitions are stored at the ends of the vans they may be overlooked, with the result that they cannot be withdrawn after loading has begun. Members of the staff are enjoined to stow the goods tightly, rearranging the load as may be necessary for the proper use of the partitions; and to insert the boards as the load grows, still keeping the packages ship-shape, aiming at such a result as that illustrated alongside.

XUM

Above : New type of travel voucher (left) and special envelope (right) issued by the Swiss Federal and private railways to enable "travel" to form the subject of a gift. *(See paragraph on page 112)*



Left : Open-sided and curtained Austrian railway carriage as used a hundred years ago. The central buffing and coupling gear will be noted ; alongside these is the pedal of a foot brake

A series of new all-steel third class corridor coaches has recently been built for the French National Railways by the Usines Petolat. Underframe, sides, and roof are constructed integrally by welding and form a box girder. There are ten compartments and two lavatories, and special attention has been given to heating, lighting, and ventilation. Light metals have been used for interior fittings and decoration. The seats are upholstered and covered with green imitation leather

RAILWAY NEWS SECTION

PERSONAL

Sir Frank E. Smith, G.B.E., K.C.B., D.Sc., LL.D., F.R.S., will relinquish on January 31 his appointment as Secretary to the Committee of the Privy Council for Scientific and Industrial Research. The King has been graciously pleased to approve the appointment of Professor E. V. Appleton, D.Sc., LL.D., F.R.S., to succeed Sir Frank Smith. Professor Appleton is at present Jacksonian Professor of Natural Philosophy in the University of Cambridge and Fellow of St. John's College, Cambridge, and will take up his new appointment on February 1.

From *The London Gazette* of January 13, 1939: Regular Army Reserve of Officers, Corps of Royal Engineers: Lt.-Colonel Rudgard, A.M.I.Mech.E., resigns his commission (January 14).

Mr. Rudgard is Divisional Superintendent of Operation at Derby, L.M.S.R.

British Timken Limited announces the appointment of Mr. D. McNicoll, B.Sc., as Export Sales Manager. This is a new post created to assist in the management of the increasing export business which British Timken Limited is now undertaking, particularly in the supply of large bearings for heavy industrial applications, such as rolling mills. Mr. McNicoll joined British Timken Limited in 1934, and has travelled widely for the firm.

Mr. Herbert D. Harling, of the Canadian National Railways Passenger Department, has been appointed Traffic Representative at Toronto of Trans-Canada Air Lines. Mr. Harling was born in London in 1900, was educated at Tennyson's School, Battersea, and served with the Royal Air Force during the great war. He began his railway career in the Canadian National freight office at Kingston, Ontario, in 1920, subsequently transferring to the Passenger Department. In 1925, he was placed in charge of the C.N.R. travel bureau in the Toronto city ticket office.

Mr. J. S. Paterson, Stores Superintendent, Leopoldina Railway, who left Rio de Janeiro for England on leave in June, has resigned owing to ill health. Though no official announcement has been made, his place has been filled by Mr. E. G. McKanna, Assistant Accountant.

Mr. H. B. Emley, C.M.G., has been appointed General Manager of the Aire & Calder Navigation, and will take up his new post on May 1 this year. Mr. Emley was educated at Charterhouse School, and for five years was on the former North Eastern Railway, first as a pupil in the Darlington workshops, and then in the running shed and office for two years. In 1914 he joined the Army, serving two years in the Infantry and one in the Flying Corps, after which he was transferred to the light railways operating in France as Locomotive Superintendent. At the end of the war Mr. Emley returned to the North Eastern Railway and was appointed Assistant Works Manager of the locomotive works at Gateshead, where he remained for 3½ years. In 1924 he went out to the Kenya & Uganda Railways as Mechanical Engineer and Workshop Manager, and in 1929 was promoted Chief Mechanical Engineer of that system. Mr. Emley went to the Sudan in April, 1930, as Deputy Chief Mechanical Engineer of the railways, and was appointed Chief Mechanical Engineer in May, 1931, which post he held until February, 1932, when he became General Manager of the Sudan Railways. In February, 1935, Mr. Emley was appointed an Additional Member of His Excellency The Governor-General's Council in the Sudan. In January, 1938, he was created a Companion of the Most Distinguished Order of St. Michael and St. George.

Mr. H. B. Emley, C.M.G.

General Manager, Sudan Railways, 1932–38 who has been appointed General Manager, Aire & Calder Navigation

The late Sir Henry Fowler, formerly Chief Mechanical Engineer of the L.M.S.R., whose death on October 16 was recorded in our issue of October 21, left estate of £18,199 (£12,185 net).

British Insulated Cables Limited announces that Mr. G. H. Nisbett has been elected Deputy Chairman of the board of directors, in addition to retaining his position as Managing Director; and that Mr. T. A. Eades, Managing Director of the Automatic Telephone & Electric Co. Ltd. has been appointed a Director of the company.

Mr. H. O. Reynolds, B.A., Financial Commissioner of Railways, Burma, has received the honour of C.M.G. Mr. Reynolds is also Financial Commissioner to the Government of Burma, which administration he represents on the Burma Railway Board, under the new constitution. Educated at Sedbergh, Owens College, Manchester, and Emmanuel College, Cambridge, he passed into the Indian Civil Service in 1906, and was posted to Burma. Among the positions he has since occupied are Assistant Secretary, and Under-Secretary to Government; Deputy Commissioner; Secretary to Government, Reforms Office, Agriculture, Excise and Forest Department; Commissioner of Settlements and Land Records; and Additional Secretary, Home and Political Department, and Commissioner.

INSTITUTION OF CIVIL ENGINEERS

The following are among the associate members recently elected by the institution:—

Mr. M. L. J. de Marassè-Enouf, Sudan Railways.

Mr. M. Graham, Ministry of Transport (Roads Department).

Mr. Edward Huskisson, whose appointment as Joint Managing Director of Thos. Cook & Son Ltd., was recorded in our issue of December 23, was educated at Merchant Taylors' School and joined the firm of Thos. Cook & Son on February 7, 1898. For the first five years of his service he was attached to

the Banking Department, but in 1903 was transferred to the tourist side of the business. After working in the head office, he was attached to a number of London branches, offices in France, Switzerland, Germany, Italy, and Austria, as Cashier originally and subsequently as Booking Clerk, and then as Branch Manager. After this varied experience, he was appointed Assistant to the late Mr. H. H. Spiller, who was the firm's Ambassador at Large. Mr. Huskisson eventually succeeded Mr. Spiller, and was responsible for a great deal of the reconstruction work involved after the great war. He was appointed General Manager of Thos. Cook & Son Ltd., in 1935. During Mr. Huskisson's service, he has travelled in every country in Europe, including Russia, pre-war, and in the U.S.S.R., post-war; he has also visited the Balkan States, Asia Minor, and America. Mr. Huskisson has been decorated by the German, Norwegian and Belgian Governments for his services to international tourism.

Mr. Edward Huskisson

Appointed Joint Managing Director, Thos. Cook & Son Limited

Mr. Ernest Stone, who as announced in our issue of January 6, retired from the position of Registrar, Southern Railway, on December 31, began his business career with Messrs. Burchell & Co., Solicitors and Parliamentary Agents in Westminster. The firm at that time acted for a number of railway companies, including several in the West of England, some of which afterwards became vested in, and now form part of, the Southern Railway. Mr. Stone entered the service of the former London & South Western Railway in October, 1891, and for a short time was posted to the Goods Department at Nine Elms, but was shortly afterwards transferred to the Secretary's Department, where, during the next 40 years, he passed through all positions in the office, and on the amalgamation of the Southern group of railways was appointed Chief Clerk to the Secretary. For nearly 34 years of this period Mr. Stone acted in a personal capacity to five successive chairmen, including Sir Charles Scotter, Bt., Sir Hugh Drummond, Bt., the Hon. Everard Baring, and Mr. Gerald Loder (afterwards Lord Wakehurst). In September, 1933, Mr. Stone was appointed Registrar, and during his tenure of the Stock and Transfer Office the department has been completely reorganised and a system of mechanisation introduced which has functioned in a very successful manner. It is interesting to record that Mr. Stone's father served the former South Western Company in the Locomotive Department for 53 years, and with the 47 years completed by his son (now retired) a total service of exactly 100 years can be recorded.

Mr. H. Barnden, whose appointment as Registrar of the Southern Railway Company was announced in our issue of January 6, entered the Secretary's Office of the former London Brighton & South Coast Railway at London Bridge in May, 1901, and after experience in various sections of the office was, at the end of 1911, appointed Personal Clerk to the Secretary and Private Secretary to the Chairman. In the latter capacity he served successively Lord Bessborough, Mr. C. C. Macrae, and Mr. Gerald Loder. After the amalgamation of the Southern group, Mr. Barnden was transferred to Waterloo where he was engaged on board and committee work; and in May, 1932, he again became Private Secretary to Mr. Loder (afterwards Lord Wakehurst), and in 1934 to the present Chairman, Mr. Robert Holland-Martin.

Mr. Ernest Stone

Registrar, Southern Railway Company, 1932-38

Mr. H. Barnden

Appointed Registrar, Southern Railway Company

Elliott [*& Fry*

The late Mr. W. Challis

Chief Assistant to Assistant Engineer (Signals & Telegraphs), S.R., 1925-39

We regret to record the death on January 17 of Mr. W. Challis, Chief Assistant to the Assistant Engineer (Signals and Telegraphs), Southern Railway. Mr. Challis gained experience in the manufacture of electrical and signalling equipment in the works of Spagnoletti & Crook, and in 1902 joined the Metropolitan Railway. His first work here was in connection with the conversion to metallic circuits of the telegraph, lock-and-block, and telephone instruments necessitated by the electrification of the railway. In 1908 he was promoted to be an Inspector-in-charge, and in 1913 the mechanical signalling and telegraphs were placed under his supervision. Mr. Challis was made Assistant for Signals and Telegraphs in 1921, and in the next year was appointed Signal and Telegraph Superintendent. Mr. Challis joined the Southern Railway in 1925 as Assistant to the late Mr. W. J. Thorrowgood, the company being then initiating its large programme of power and colour-light signalling in the London area. His title was changed to Chief Assistant to the Assistant Engineer (Signals and Telegraphs) when Mr. Thorrowgood was succeeded by Lt.-Colonel Hall in 1928. Mr. Challis was elected to the Council of the Institution of Railway Signal Engineers in 1923 (having been a Member of the institution since 1917). He was Vice-President of the institution in 1932-33, and President in 1933-34. He represented the institution on several committees of the British Standards Institution, acting as Chairman of certain sub-committees. Mr. Challis was also a Member of the Three-Position Signal Committee.

The funeral will take place on Saturday at the Norwood Crematorium at 11 a.m. An editorial note on Mr. Challis's career appears on page 85.

We regret to record the death on January 8, at the age of 46, of Mr. E. O. Sear, late Assistant to the Chief Accountant, Great Western Railway, Paddington. Mr. Sear entered the company's service in 1907 as a junior clerk at Paddington, and apart from three years' war service, had been continuously engaged there, serving in various sections of the Accountant's Office, until in 1925 he was placed in charge of the Joint Lines and Stations Section. In October, 1932, Mr. Sear was transferred to the control of the Capital Accounts Section and appointed Book-keeper, which position he relinquished on his appointment in June, 1934, to the post of Assistant, assuming charge of all inter-company financial arrangements, a sphere in which his knowledge and judgment were everywhere recognised as of the highest possible order. Although he had been in failing health for some time, the news of his sudden death has been keenly felt by the very wide circle of friends he made in the course of his service with the company, where his exceptional ability, unfailing good nature, and high sense of duty were deeply appreciated.

The funeral took place at Ealing on January 14, and in addition to members of the family, all the principal officers of the Great Western Railway, and the chief accountants of the L.M.S.R., L.N.E.R., and Southern Railway Companies, and of the London Passenger Transport Board either attended personally or were represented. In addition, a large and representative body of his former colleagues at Paddington, and associates from each of the other railway headquarters were present.

Mr. Stephen E. Vivian Smith has been appointed Assistant to the General Manager of the Central Argentine Railway.

Colonel G. A. P. Maxwell, late General Manager of the Tanganyika Railways, has been appointed Chairman of the Railway Commission (of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate), in succession to Mr. Roger Gibb, who has retired. Mr. Gibb has not enjoyed good health lately and is now on leave in the Union prior to returning to England.

COLONIAL OFFICE APPOINTMENTS

The Secretary of State for the Colonies has recently approved the following appointments:—

Mr. C. E. Coulman, Assistant District Traffic Superintendent, to be Commercial Assistant, Palestine Railways.

Mr. E. J. B. Gahan, District Engineer, Kenya & Uganda Railways and Harbours, to be Senior Engineer, Nigerian Railway.

Mr. A. F. Kirby, Traffic Manager, Gold Coast Railway, to be Assistant Superintendent of the Line, Kenya & Uganda Railways and Harbours.

The Story of the Taff Vale Railway

The monthly meeting of the Railway Club was held on Thursday of last week, January 12, with Mr. Kenneth Brown in the chair. Mr. D. S. Barrie gave an interesting and lively address on the Taff Vale Railway, beginning by outlining the early history of the South Wales iron and coal industries, and explaining how the difficulties of transport to the waterside at Cardiff and other places led to the promotion of canals and tramroads which were among the earliest of their kind.

Dealing with the Taff Vale Railway itself, Mr. Barrie gave many entertaining details of its history, from the time its Act received the Royal Assent on June 21, 1836, until its absorption as a constituent company of the Great Western Railway in 1922.

That the "big" railway companies have by no means a monopoly of interesting historical features was proved by the lecturer when he quoted the unusual practice of the Taff Vale in its early days of running trains on the right-hand track, and of operating certain of its coastbound mineral trains without rear brake-vans—a practice which brought it into conflict with the Board of Trade. The Taff Vale must have been amongst the earliest railways to offer that popular attraction "single fare for double journey"; such facilities were in operation as long ago as 1847, though the company granted them only on Sundays and denied them to the third class traveller. Other features which characterised the often turbulent history of this pioneer South Wales system were its claim to operate the densest mineral traffic in the world, and its participation in several important legal cases. In one of these the company established the right to sue for damages the officials of a trade union in a representative action; in another it had to defend in the courts the validity of a lease which had already been ratified by Parliament!

Brunel was the company's first engineer, and his use of the narrow gauge on the 24½-mile line from Cardiff to Merthyr was later to cause him some embarrassment when giving evidence before the Gauge Commissioners. Unlike many of his viaducts, those on the Taff Vale were of stone, and several are in use to this day; on the neighbouring Vale of Neath Railway, however, Brunel built timber viaducts, of which two examples are still in service on the Dare mineral branch. The main line of the Taff Vale Railway was opened throughout in April, 1841, and the construction of branches along the Rhondda, Aberdare, and other valleys in subsequent years gave the line its characteristic tree-like appearance on the map, with Pontypridd as the focal point of the system. The line enjoyed ever-increasing prosperity and extension up to the 1880's, when the opening of the Barry Railway caused dividends to drop from 15 to 2¼ per cent. in three years.

The history of the South Wales railways has always been most difficult to unravel, owing to the number of separate lines and the many and complicated working arrangements between them, but Mr. Barrie succeeded admirably in presenting a clear picture of Taff Vale history. He described how it, the first public railway of any commercial importance in South Wales, was brought into being by the needs of the coal trade, helped to raise that trade to the height of its prosperity, and eventually was absorbed into a vastly larger entity, which, owing to the decline of the major industries of the district, has had to put into force measures of economy which might have spelt ruin to the Taff Vale as an independent line.

XUM

Progress of the "Square Deal" Campaign

Railway companies' amplified proposals submitted to committee of Transport Advisory Council

A meeting between the representatives of the railway companies and the committee of the Transport Advisory Council appointed to consider their claims for relief from restrictions on freight rates and charges, was held in London on January 13. On its conclusion, the council issued the statement set out below of the proposals which the railways had put forward, based upon the results of discussions they have lately held with certain trading interests (see editorial articles in our issues of January 6 and this week.

Railway Companies' Amplified Proposals

Arising out of discussions which have taken place between the railway companies and certain interests representing traders, the original proposals of the railway companies for the complete abolition of rate-control, pending the establishment of a complete system of co-ordination of the various forms of transport, have been amplified as follow:—

I. *General.*—The railways seek no alteration in the law relating to their obligation to provide reasonable facilities, through rates or standard conditions of carriage.

II. *Trading Interests.*—(*a*) It is proposed that friendly contact and understanding will be ensured by establishing regular periodical meetings between the various trading associations and the railway companies for the discussion of railway rates and charges, trade prices, and other matters of common interest. At these meetings each party would undertake to give the other all appropriate information bearing on the subjects under discussion, and every endeavour would be made to arrive at a settlement by friendly negotiation.

(*b*) In the event of agreement proving to be unattainable, there would be provided a procedure for appeal to a body such as the Railway Rates Tribunal who would have the power of deciding on the reasonableness or otherwise of the charge or charges under dispute.

(*c*) For the purpose of placing this procedure on an established footing certain legislation would be required. This would take the form:—

(*i*) of a provision entitling the railways to make such *reasonable* charges as they thought fit.

(*ii*) of a further provision placing on a body such as the Railway Rates Tribunal in cases of disagreement the responsibility for deciding whether particular charges were in fact reasonable, and if not of fixing reasonable charges.

(*d*) Every trader, or body of traders, would have the right of appealing on the question of reasonableness, although it is hoped that normally such cases would all be referred before appeal for discussion at one or other of the periodical meetings arranged between the appropriate trading association and the railway companies.

The railway representatives have not yet had the opportunity of laying these proposals before the general body of traders; for that reason they desire to emphasise the main features of the scheme, which they have in mind; These are:—

(*i*) All rates must be reasonable rates.

(*ii*) If a trader or agriculturist thinks the rate quoted to him is unreasonable he can appeal to a body such as the Railway Rates Tribunal.

(*iii*) In order to obviate unnecessary formal proceedings and to simplify them, where he is a member of any recognised trading association he can, before appealing, bring his complaint before the regular joint meeting of that association and the railways, as referred to in paragraph II (*a*), at which all appropriate information will be given to him.

It is suggested that under safeguards of this description he will, under existing conditions of competition, have ample protection against injustice or excessive charges.

These amplifications together with the memoranda submitted by various organisations of traders are now under the consideration of the committee, but no definite decisions have been reached.

Negotiations are also proceeding between the railways' representatives and other interests, and further amplification of the original proposals of the railway companies may be made.

The railway companies are prepared to accept a suggestion made by the committee that any legislation which may be introduced should be limited in its application to, say, five years.

First Public Hearing

On January 19 the committee of the Transport Advisory Council sat in public at the Institution of Civil Engineers to hear evidence given by representatives of traders' organisations. The railway companies' informal talks with trading interests and other forms of transport have been proceeding meanwhile. They were referred to by Mr. A. Forbes Smith, Assistant to Chief General Manager (Rates), L.N.E.R., in a speech to the staff of J. Lyons & Co. Ltd. in London on January 17. He announced that further talks with road transport and coastwise shipping representatives were being arranged, and stated that the conversations already held with canal interests had led to an understanding satisfactory to both sides. This statement, however, was described as "premature" in a notice issued by the Canal Association on January 18, wherein it was pointed out that "any agreement with the railway companies will be conditional on satisfactory safeguards being given to canals, and negotiations are still proceeding with regard to those safeguards."

A new "square deal" poster by Bert Thomas

Competition with Coastwise Shipping

A report published by the Fact Finding Committee of the Chamber of Shipping of the United Kingdom discussed the effects on shipping of the railway competition. It stated that the present contribution of coastal shipping to internal transport, measured on a ton-mile basis, was equal to about half the total traffic carried by rail. The competition of the railways was serious, both to coasting liners and coasting tramps. The existing arrangements between some of the liner companies and some of the railway companies had worked very well, and negotiations were proceeding for the strengthening and extension of the agreement. Coastwise shipping agreed that a revision of the control of railway rates was overdue, but maintained that a form of control must remain, without which the enormous resources of the railways, represented by a total capital of £1,200 millions and through their ownership of docks and port facilities, would put them in a position to dictate to their competitors. The safeguards for coastal shipping in existing Railway Acts were of limited value. The liner companies were ready to enter into discussions for a comprehensive voluntary agreement with railways, road hauliers, and canals, as soon as the organisation of road hauliers had sufficiently advanced.

Revision of Fares in the London Area

Official particulars of the intended methods of increasing certain railway, bus, coach, trolleybus, and tram fares

At a recent meeting, the Standing Joint Committee of the London Passenger Transport Board and the main-line railway companies recommended to the transport board and the main-line companies that the necessary steps should be taken to provide for an increase of certain fares in the London Passenger Transport Area.

The transport board and the main-line companies have approved this recommendation and are making application to the Railway Rates Tribunal for permission to increase the passenger charges by 5 per cent. or thereabouts on the suburban lines of the main-line railways, and also upon certain railways owned jointly by the board and the main-line companies and certain sections of railways owned by the main-line companies over which the board's trains provide a service. The London Passenger Transport Board also proposes to increase certain fares on its railways which are not included in this application to the Railway Rates Tribunal, and, in addition, proposes to increase certain fares on the bus, tram, trolleybus, and coach services.

London Transport Railways

Many of the fares on the board's railways are now below the board's standard of a 1d. a mile, and it is proposed to increase some of these fares to conform more closely to that standard, especially in those cases where the mileage rate is exceptionally low. There will also be an adjustment of certain fares to avoid anomalies which would otherwise result from these changes. Workmen's fares on the board's railways will still be determined upon the existing standard of single ordinary fare for a return journey where that basis now applies, and therefore will be increased only where the ordinary single fare is increased. Cheap day return tickets, where these apply, will be on the basis of the single ordinary fare plus one-half. Season tickets rates will be increased where they are now below the scale of charge adopted by the board, but, as far as possible, the increases will be limited to 5 per cent. or thereabouts.

London Transport Road Services

On the London Passenger Transport Board's road services the standard of a 1d. a mile for ordinary fares will be maintained; no general revision of fare stages is contemplated. Certain exceptionally low ordinary fares will be increased. The "all-the-way" single fare of 5d. applying on certain (chiefly tram) routes will be increased to 6d. and the corresponding workmen's return fare to 7d. Ordinary return fares where less than double the single fare will be generally withdrawn, except the 8d. "all-the-way" return fare which will be increased to 9d. The 1d. cheap midday fare will be withdrawn. The 2d. cheap midday fare will be restricted to journeys for which the ordinary single fare does not exceed 4d.; for longer journeys it will be increased to 3d. Some changes relating to "all-day" fares and scholars' fares will be made. On the coach services there will be little change in the single fares, which now conform generally to the 1d. a mile standard. Return fares which are now on a basis of approximately single fare and one-half will be slightly increased. Coach season ticket rates on certain routes will be adjusted where they are below the present standard of charge.

In the official announcement of these proposed changes, the London Passenger Transport Board and the main-line railway companies express regret in having to take this step, but they state that the heavy increase in the general level of costs and other factors make it imperative that their revenue should be increased.

The jointly-issued statement concludes: "The task of providing London with an efficient system of passenger transport can be carried out successfully by the transport board and the main-line companies only if their financial position is such as will allow them out of their own resources, and on their own credit, to provide the large sums of money which will be needed from time to time to provide for the continued expansion and improvement of the present system of transport."

Press Visit to Brush Coachwork Limited, Loughboro'

At the beginning of this year the Brush Electrical Engineering Co. Ltd. was re-organised, the erstwhile rolling stock section being converted into a subsidiary company known as Brush Coachwork Limited, and in this connection press representatives were entertained at luncheon and given an opportunity of inspecting the company's works at Loughboro' on Thursday, January 12.

Mr. T. B. Keep, Managing Director, after explaining that coach-building has been segregated from the remainder of the parent company's activities principally to avoid overlapping and to facilitate costing, mentioned, among other facts of historical interest, that the Brush Electrical Engineering Company had built, since its inception in 1889, road vehicles ranging from horse-drawn buses to trolleybuses, as well as railway rolling stock, and had also been responsible for the first all-steel passenger body, which was exhibited at the first Commercial Motor Show, in 1907. At the present time, the speaker went on to say, safety was of paramount importance, and this had resulted in the placing of many restrictions on the construction of passenger-carrying vehicles; it could certainly be claimed that the modern British passenger coach was the safest of its kind in the world, and this was borne out by the latest Ministry of Transport statistics, which showed that in 1938 6,550 million passenger journeys were undertaken on public service vehicles, involving a mileage of 1,500 million, and yet only 4·3 per cent. of all road casualties resulted from accidents in which these types of vehicles were primarily concerned. One result of the restrictions mentioned was the constant endeavour of the body builder to "put a quart into a pint pot," since the cry was for more and more passenger seats and less and less weight, and the speaker thought that it was up to the chassis manufacturer to co-operate to a greater degree in weight reduction. As regards the company's future policy, one feature of this was concerned with catering for the small as well as the large operator; another development which they intended to push further was the all-metal body, and in view of the demand for this type in tropical countries it was hoped that export business would thereby be enhanced; finally, they intended to go in for a higher class goods body, impressed as they were by the fact that more business comes to the tradesman or transport concern with good-looking vehicles than to those with shabby ones.

After luncheon, guests were conducted over the works and given excellent facilities for seeing coach production in full swing. In the saw mill (which is to be entirely re-planned and equipped with additional machinery) was witnessed the work of producing component parts such as main and subsidiary framings, doors, lockers, and so on, which are then passed on to the finished timber stores for subsequent issue to the body building shops. In the latter were seen the erected body framings of double- and single-deck vehicles, hundreds of which pass through the department annually, and it was particularly interesting to notice, in the composite body building shop, how flitch plates, forming a strengthening ring of steel round the vehicle bodies, had been cunningly hidden in grooves cut inside the visible timber components, so as to produce the desideratum of great strength with lightness. Opportunity was also given of viewing all-metal bodies, for the manufacture of which the Brush patented construction was purposely developed, involving, *inter alia*, a special metal-work engineering shop, which turns out the components for such construction,

XUM

consisting of a patented rolled pillar section of high tensile steel, crossbars of ⅛ in. pressed steel section, and roof-sticks of a similar pressed steel section; the whole of the components are produced by the use of specially designed jigs, to ensure interchangeability of like parts.

Visits were also paid to the panelling and chassis-mounting department, where bodies, after being mounted on their respective chassis, receive upper saloons, interior panels, flooring, and incidental fittings, and to the paint shop, where the vehicles receive their furnishing, seats, window-frames, ventilator-casings, Rexine panelling and decorative mouldings, stanchions, and so on, and are then carefully painted with a total of ten priming, filling, and finishing coats.

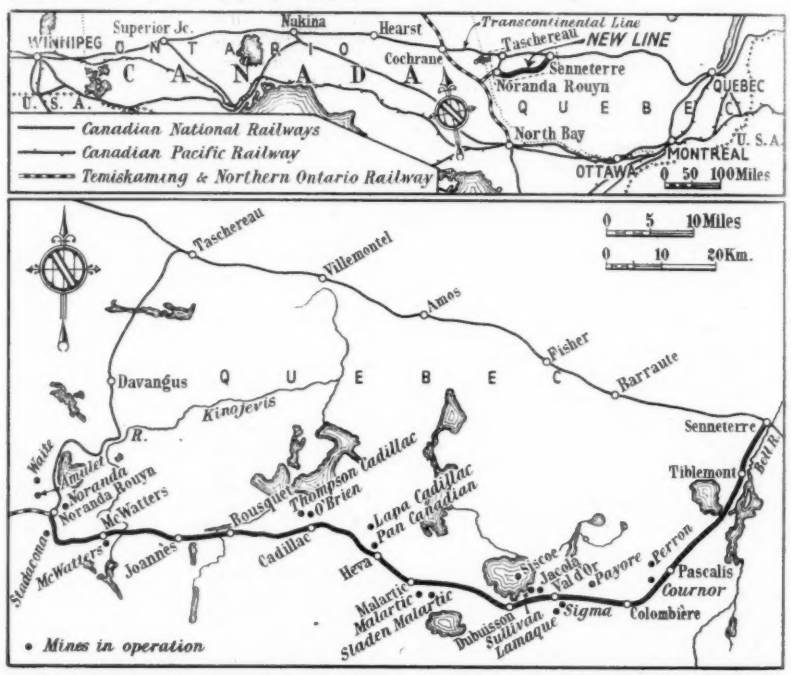
From the paint shop vehicles are driven out complete for general inspection and testing, which includes water test, tilting test, weighing, and other tests to conform with Ministry of Transport regulations.

Railways in the Rouyn (Noranda) Mining District

Mineral wealth, chiefly gold, which has resulted in the opening up of northwestern Quebec, was first discovered in 1906 by two prospectors. Four years later there was a small-scale gold rush in the district north of Lake Temiskaming near the Ontario border, and in 1912 the section of the National Trancontinental line running through this territory, now a part of the Canadian National system, was opened. These Quebec gold deposits were practically neglected during the war period, but in 1920 several claims were staked in the area 44 miles to the south of Taschereau. When the mining interests which discovered and developed Noranda, Quebec, reached the conclusion that their mineral showings warranted the development of a mine, railways transport became an essential requirement. It is understood that they approached the Canadian Pacific Railway with the proposal that it should extend its railway through Angliers to the prospective mine, but that the C.P.R. found itself unable to adopt the proposal. The mining interests then sought the aid of the Canadian National Railways and, after a careful study of the territory, the latter agreed to build the required railway connection. At that time it required a large measure of faith in the territory to warrant building 44 miles of railway at a cost of $3,500,000, even when allowance is made for a subsidy of $250,000 from the Province of Quebec, and $71,854 contributed towards deficits in early years by Noranda Mine Limited.

It was deemed advisable to obtain a provincial charter for a subsidiary of the Canadian National Railways, and this was granted on April 3, 1925, to the Rouyn Mines Railway Company. Subsequently the name was changed to the National Trans-Continental Railway Branch Lines Company, and the line, from Taschereau to Rouyn (Noranda), was completed late in 1927 and leased to His Majesty for a period of 30 years at a rental sufficient to pay interest on the bonds and to amortise the principal. In addition to powers for the branch from the main National Transcontinental Railway at Taschereau to Rouyn, authority was also secured for an extension from Rouyn (Noranda) in a north-easterly direction to Senneterre was planned, in order to serve the territory then in process of development. Moreover, powers were obtained for a westward branch to extend from Noranda to the Quebec—Ontario boundary. The latter scheme became unnecessary when the Nipissing Central Railway (a subsidiary of the Temiskaming & Northern Ontario Railway) was built into Noranda.

Trade depression deferred the Senneterre project, but on June 23, 1936, the Canadian Parliament passed a Bill authorising the C.N.R. to proceed with the work, and voted $5,940,000 to defray the cost of construction. A period of three years was allowed for the completion of the line. Location surveys were begun in June, 1936, and tenders for various works were sought on September 30 following. A contract was awarded on October 22, 1936, and the contractor began work on November 9. At the end of 1937 he had completed 89 miles of grading, and the balance of 11½ miles was finished by September, 1938. On November 29, 1937, the first portion of the branch, extending from Senneterre to a point one mile beyond Val d'Or, a distance of 37½ miles, was opened. The remaining portion was completed towards the end of November last, and the official opening ceremony took place on Saturday, December 3 (as recorded on page 1152 of our issue of December 30, 1938). Regular scheduled passenger and freight service began on Monday, December 5 last.



New Swiss Travel Vouchers

We illustrate on p. 106 a new type of travel voucher of unusual and attractive design issued by the Swiss Federal and private railways, and the design of the envelope supplied with it. For some years past it has been possible to purchase at any Swiss station a voucher entitling the recipient to a ticket for a specified trip, but the idea has now been extended, enabling the gift to represent travel value for a certain amount, the actual journey and class to be designated by the recipient. If there is a balance available in the latter's favour, another voucher is issued with the actual tickets and accepted later on towards the cost of another journey. Both voucher form and envelope are produced in a pleasing shade of sepia, and feature a fast electric railcar of the Red Arrow type. The reverse side of the envelope is suitably lined for filling in the names and addresses of the donor and of the recipient, ready for posting.

RAILWAY AND OTHER MEETINGS

Rohilkund & Kumaon Railway Co. Ltd.

The annual general meeting of the Rohilkund & Kumaon Railway Co. Ltd. was held at Gresham House, Old Broad Street, E.C., on January 17, Lt.-Colonel T. Gracey, R.E., Chairman of the company, presiding.

The Acting Secretary (Mr. F. A. Wake) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that before proceeding to the ordinary general business of the meeting he would like to refer to the great loss the company had suffered in the death of Sir Leonard L. Cohen, K.C.V.O., on April 10 last. Sir Leonard served as a member of the board for over 32 years, and his intimate knowledge of financial matters was always at the disposal of the board, and had been of the greatest service to them during the many financial crises that they had faced during and since the great war.

They welcomed as his successor Sir Malcolm Hogg, whose services the directors congratulated themselves on obtaining to help them grapple with present-day financial problems, which did not show any signs of getting simpler. Their Secretary, Sir James Williamson, had been deputed by the board to proceed to India on the business of the company.

Gross earnings for the year ended September 30, 1938, amounted to Rs. 75·62 lakhs, which was only Rs. 1·57 lakhs less than the record year of 1937, both coaching and goods traffic showing a slight falling off. Working expenses increased by Rs. 4·14 lakhs due to heavy renewal of locomotives and to the increased cost of coal. The cost of coal had fallen in the present year, but a fairly heavy programme of locomotive renewals had to be faced.

Dealing with the net revenue account, the Chairman said the company's share of the net earnings of the undertaking amounted to £125,572, against £144,823, and after adding the share of surplus profits of the Lucknow Bareilly Railway (£9,534) and deducting the slight loss by exchange on remittances to London, the net results amounted to £134,892, against £158,316 for the year 1937, a decrease of £23,424. After making the necessary adjustments on account of debenture interest, preference and interim dividends, and providing £6,350 for the Secretary of State's share of surplus profits, the amount to be dealt with was £50,166. Out of that sum the directors proposed to pay a final dividend of 6 per cent. with a bonus of 4 per cent., amounting to £34,167. This, together with the interim dividend and bonus of 8 per cent. already paid, would make a total distribution of 18 per cent. for the year, the same as the last two years. The carry forward to next year would be reduced to £15,999 10s. 1d.

The monsoon had been normal and well distributed in the area served by the railway, and they had fortunately been little troubled with floods and washouts. Two of their principal items of goods traffic were sugar cane and sugar, and during last year, comparing with a bumper year, the tonnage of sugar cane carried decreased by 14 per cent. through a smaller crop, and though the tonnage of sugar carried increased by 1 per cent. the total freight earned decreased by Rs. 1,70,000. The prospects for sugar cane and sugar for this year were fair; the earnings therefrom might show a slight increase on last year, but probably would be still a good deal below those of 1937.

Road motor competition had not appreciably increased during the last year, and no progress had yet been made by the local government towards imposing a better check and control over road motor traffic. The Motor Vehicle Bill had emerged from the select committee that was considering it, but had not yet been passed into law.

As he mentioned in his speech last year, a memorandum had been sent to the Railway Board representing the inadequacy of the revised scales of pay and general prospects which were necessary to obtain suitable candidates for the superior staff of the railway, and in answer the board was informed by the Railway Board that it regretted it did not see the necessity for increasing the scale of emoluments offered, and had no doubt that candidates could be obtained for any vacancies that required to be filled. As the board felt that this was a matter of the greatest importance, a further communication on the subject had been submitted, in conjunction with all the other company railways operating in India, to the Secretary of State for India. The board agreed that candidates could be obtained, but not suitably qualified men of the high standard that was necessary, such as were obtained under the old scales of pay.

There was a constant tendency for working expenses to increase owing to the effects of legislation and the general increase in the costs of most materials, especially metals and fuel, though he was glad to say that they appeared to have passed the worst and latterly prices of these latter showed signs of declining. A constant watch was kept on this tendency and every endeavour was made to keep down any expenditure which did not tend directly to increase the safety, amenities, and earning capacity of the railway, and the benefits which tended to the contentment of the staff.

There was a final matter which he wished to refer to; they would have seen that it was proposed to ask the shareholders to increase the yearly remuneration of the directors from £1,650 to £1,950 per annum. When the Chairman ceased to be designated Managing Director on February 1, 1937, it was overlooked that the continuance to him of the sum of £300 formerly paid him as Managing Director would have to be sanctioned by a meeting of the shareholders. The Chairman did all the work he always used to do, and the nominal increase of fees to the directors would entail no extra charge on the working expenses, but only correct an illegality which had been overlooked.

He was glad to say that the reports for the current year were not unsatisfactory, and their thanks were due to the Agent and staff in India and in their London office for the excellent work they had done during the year.

The adoption of the report and accounts was seconded by the Rt. Hon. Lord Meston, K.C.S.I., and the resolution was unanimously carried.

The Chairman then proposed: "That the final dividend of £6 per cent. and a bonus of £4 per cent. for the half-year ended September, 1938, on the ordinary stock of the company, subject to income tax, be, and the same is hereby declared, making with the ad-interim dividend of £4 per cent. and a bonus of £4 per cent. paid on July 25, 1938, a total dividend of £18 per cent. for the year ended September 30, 1938."

Mr. W. Stantiall seconded the resolution, which was unanimously carried.

The Chairman proposed: "That this meeting confirms the payment to the board of remuneration pursuant to Clause 106 of the company's articles of association at the rate of £1,950 per annum as from February 1, 1937, and authorises payment at that rate until otherwise determined by the company in general meeting."

Sir John Archer seconded, and the motion was adopted unanimously.

The Rt.-Hon. Lord Meston proposed, and Sir Malcolm N. Hogg seconded, the re-election as a Director of Lt.-Colonel T. Gracey; the resolution was unanimously carried.

The re-election of Sir Malcolm N. Hogg as a Director was proposed by the Chairman, seconded by Lt.-Colonel W. R. Izat, and carried unanimously.

Mr. H. Brannan proposed the re-election of the auditors; Mr. J. H. F. Reed seconded; and the motion was adopted unanimously.

Mr. J. H. F. Reed proposed a vote of thanks to the Chairman and directors, and to the Agent and staff in India and England, for their work during the past year.

The motion was carried, and in his reply the Chairman said they would go on trying to serve the shareholders as well as they had done up to now.

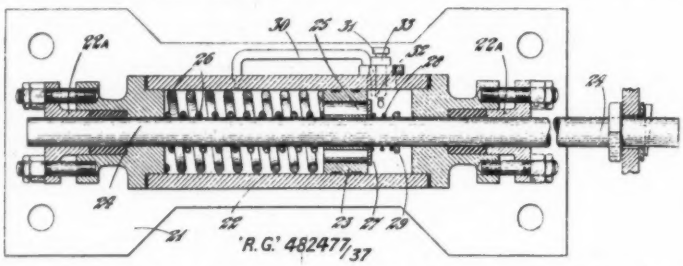
XUM

ABSTRACTS OF RECENT PATENTS*

No. 482,477. Operating Railway Points

Alan Edward Shave, of 37, Kinnaird Avenue, Chiswick, London, W.4, and London Passenger Transport Board, of 55, Broadway, Westminster, London, S.W.1.—(Application date: January 8, 1937.)

A spring motor for returning points, &c., after being trailed through, comprises a cylinder 22 enclosing a piston

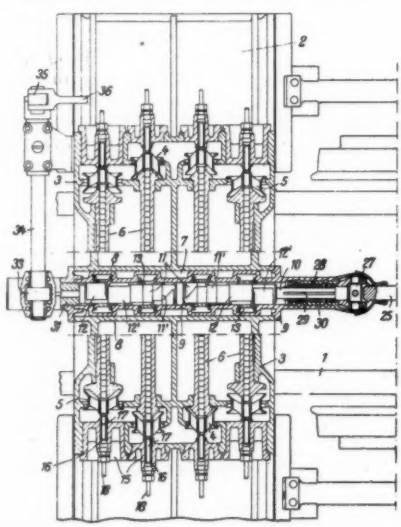


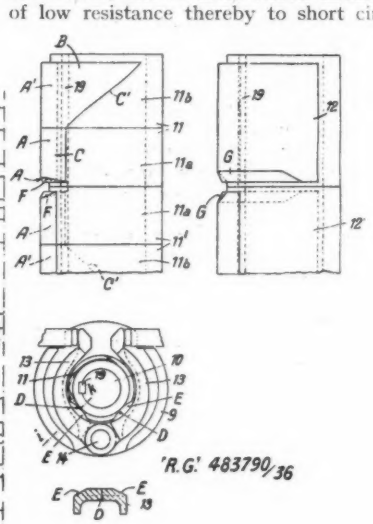
23 coupled by its rod 24 to the points and pressed by springs 26 towards the point-closing position. The cylinder contains a fluid which, during the opening of the points, passes freely through ports 25 in the piston, but during the closing movement is prevented by a spring valve 27 from returning through the ports 25 and is forced to return by a pipe 30 provided with an adjustable valve 32 so that the speed of closing of the points may be varied.—(*Accepted March* 30, 1938.)

No. 483,790. Valve Gear for Steam Engines

Hugo Johannes Lentz, of No. 2, Schwarzenbergplatz, Vienna, Austria. (Convention date : June 26, 1936.)

Steam engines for locomotives the valve gear of which is actuated by adjustable cam gear mounted on axially shiftable camshafts, are characterised in that the lifting face of the admission cams gives a constant lift along the whole axial length with generating lines parallel to the axis of rotation, the part *C* forming the running-off face for use with normal or small charges descending with parallel generating lines; whilst the other part *C'* for setting larger quantities has a helical running-off face merging into the first part. The admission and exhaust valves 4, 5 are operated by spindles through pivoted tappet members 13 from a camshaft 10, the valves being held towards their seat by steam pressure admitted from pipelines 18 through the passages 17. Each tappet member 13 is provided with a projection *D* adapted to contact with the cam. The admission cams 11 and exhaust cams 12 are for forward running, and the admission cams 11' and cams 12' for backward running, and these are carried on the camshaft 10. Each admission cam 11 consists of two parts 11*a* and 11*b*, the part 11*a* having a lifting face *A* which for its major length is provided with a parallel surface *C*, whilst part 11*b* is provided with running-off surfaces *C'* which are approximately helical. The two cam surfaces are provided with inclined end surfaces *F*, which co-operate with the bevel edges *E* of the projections *D* on the levers 12 when changing over from ahead to astern running, whereby it is unnecessary to throttle the engine down. The two parts of the exhaust cam 12, 12' are plain parallel shapes and they also are provided with inclined surfaces *G* adapted to co-act with the corresponding bevel edges *E*. The camshaft 10 is driven through a universal joint by a shaft 25 geared to one of the driving axles of the locomotive. The connection provides a sliding joint 29 so that the shaft 10 can be slidden by the adjusting gear which is linked to the control lever 36.—(*Accepted April* 26, 1938.)

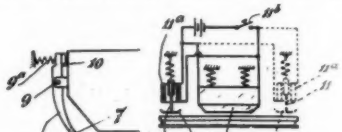


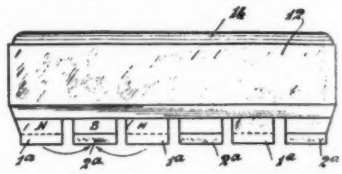


No. 482,589. Railway Signalling Systems

Freins Jourdain Monneret, of 39, *Rue Claude Decaen, Paris, France.—(Convention date: September* 30, 1935.)

To prevent false operation of a track relay by rail current induced by magnetic-brake shoes, each brake shoe has a number of poles 1*a*, 2*a*, Fig. 5, arranged so as to set up opposite fluxes whereby the induction of any rail current is practically eliminated, or the brake shoes are provided with collector shoes 7, Fig. 3, inter-connected by one or more electrical conductors of low resistance so as to form, with the portions of the rails on which the brake shoes bear, one or more closed circuits of low resistance thereby to short circuit the induced current. The collector shoe 7 is pivoted at 9, and in addition to a spring 9*a* has a member 10 of magnetic material so that on energisation of the brake shoe such member 10 will cause the collector shoe to bear firmly on the rail. Fig. 4 shows collector shoes 3 which are pressed on the rails by solenoids 11*a* energised simultaneously with the brake shoe 4. Collecting shoes on the same or different rails may be interconnected. Brake shoes with magnetic plates moving into contact with the rail, may also have





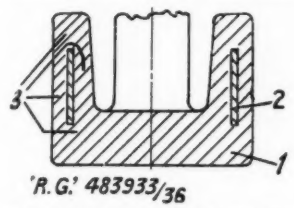
* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each

conductor plates moving into contact with the rail. The form of brake shoe with opposite fluxes may have conductor brushes.—(*Accepted March 30, 1938.*)

No. 483,933. Casting Electric Collector Shoes

Hugh Young, of 34, Lichfield Road, East Ham, London, E.6, and Harland & Wolff Limited, North Woolwich, London, E.16. (Application date: December 4, 1936.)

In casting a collector shoe 1 for electric rail traction, flat or section strips 2 are introduced to prevent breakage,

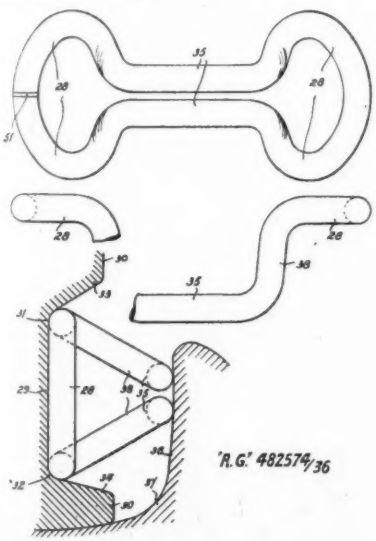


the ends being preferably bent inwards to secure adhesion.—(*Accepted April 28, 1938.*)

No. 482,574. Railway-chair Keys

Executors of James Mills Limited, of Bredbury Steel Works, Bredbury, near Stockport, Chester, and Allan Macbeth, of "Broadway," The Firs, Bowdon, Altrincham, Chester. (Application date: June 26, 1936.)

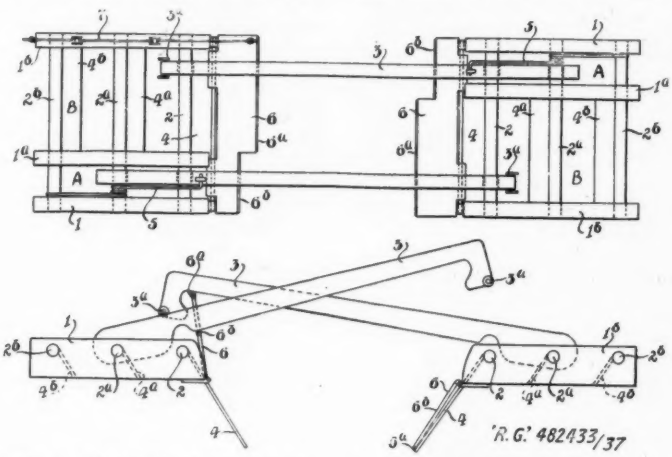
A railway-chair key is made of wire, rod or bar with the grain of the metal running longitudinally of the wire, &c., as drawn or rolled, the wire, &c., being of a diameter or thickness not exceeding over half the height of the rail web and being bent to form a key of open shape, and comprising at least one outer portion 35 in longitudinal contact with the chair jaw 36, two inner portions 28 engaging the web and fishing angles of the rail, and transverse or lateral struts 38 connecting the inner and outer portions. Several embodiments of these features are described.—(*Accepted March 28, 1938.*)



No. 482,433. Automatic Couplings for Vehicles

Michael James Killeen, of Station House, Great Southern Railways, Gort, Co. Galway, Ireland. (Convention date: March 6, 1937.)

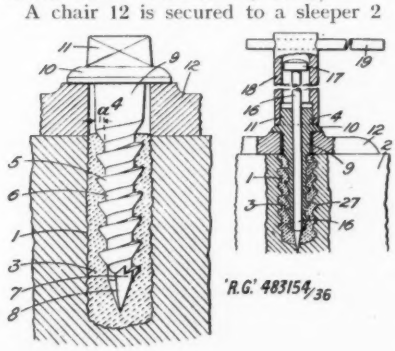
A duplicate automatic coupling for railway vehicles comprises on each vehicle a pivoted hooked bar 3 adapted, in the act of coupling, to be swung upwardly and then to drop into engagement with an abutment 2 on the opposed vehicle, each vehicle being provided with a pivoted uncoupling flap 6 which has two hook-engaging edges 6*a*, 6*b* arranged, when the flap is operated, to engage the hooks of the two vehicles so that both hooks are released simultaneously. In the construction shown, each hook is pivoted to the intermediate of three abutments 2, 2*a*, 2*b*, which, with longitudinals 1, 1*a* and 1*b*, form the coupling framework, and which may be engaged successively by an opposed hook as the two vehicles approach. Inclined guide-plates 4, 4*a*, and 4*b* are associated with the abutments 2, 2*a*, 2*b* to raise the hooks into position to engage the abutments, rollers 3*a* being fitted to the ends of the hooks to assist the guiding action.—(*Accepted March 29, 1938.*)



No. 483,154. Securing Rail-chairs to Sleepers

Noel Phillips, of 134, Upton Road, Bexleyheath, Kent, and Alfred Cecil Clow, of 33, Christchurch Street, Greenwich, London, S.E.10. (Application date: October 12, 1936.)

A chair 12 is secured to a sleeper 2 by filling a hole 1 in the sleeper with a plug consisting of a plastic mass capable of hardening, forming a screw-mounted bore in the plug by means of a tool 4 to present a thread of about the same pitch and external diameter as, but of greater depth than, that of a chair-securing screw, and inserting such a screw into said bore. The plug may consist of asbestos fibres and cement, with or without filters such as pumice powder; or asbestos fibres mixed with heated bitumen or pitch. Suitable compositions are: (1) asbestos 12 per cent., cement 47 per cent., pumice powder 23·4 per cent. and wheat flour 17·6 per cent.; (2) asbestos 12 per cent., pumice powder 50 per cent., bitumen 38 per cent. The tool 4 may be bored axially to receive a piercing implement 16 adapted to be driven into the plug prior to the tool 4.—(*Accepted April 12, 1938.*)



COMPLETE SPECIFICATIONS ACCEPTED

465,088. Sinclair, G. F., and London Passenger Transport Board. Current collector trolly-heads for electric vehicles.

465,161. Gaudefroy, E. Device for stabilising and adjusting the tension of the suspension springs of a vehicle.

465,611. Franklin, P., and Westinghouse Brake & Signal Co. Ltd. Brake rigging for railway and other vehicles.

465,725. Tennant, W. J. (Tatra Works Limited, Motor Car and Railway Carriage and Wagon Builders). Mounting and construction of wheels for power-driven vehicles.

465,777. Pollak, J. E. (Gussstahlwerk Wittmann Akt.-Ges.). Lubricating arrangements for axle boxes of rail vehicles.

472,517. Bochumer Verein für Gussstahlfabrikation A.G. Switch blade device for railway points.

472,298. Sprenger, E. Oil-fired furnaces for steam locomotives and the like.

482,056. Compagnie Internationale des Freins Automatiques, Soc. Anon. "Braking systems."

482,023. Pascale, P., and Novo Valve Corporation. "Steam drier particularly for use on locomotives."

482,238. Vereinigte Eisenbahn-Signalwerke Ges. "Railway signalling systems."

XUM

NOTES AND NEWS

Argentine Transandine Railway Purchase.—Reuters reports that the Argentine Senate on Wednesday, January 11, passed the Bill for the purchase by the State of the Argentine Transandine Railway.

Railways Militarised in Government Spain.—The Barcelona *Official Gazette* of December 24 contains a Decree providing for the militarisation of all the railways throughout the territory under the control of the Republican Government. The administration and operation of the railways is transferred to the Ministry of National Defence which will work all the lines through the existing organisation of the Ministry of Communications.

London Transport "C" Stock.—At a meeting of the recently appointed committee of London Transport "C" stockholders, held in London on January 13, it was decided that, in view of the announcement by the main-line railway companies and the London Passenger Transport Board to the effect that a revision of fares in the London Passenger Transport area was contemplated, further action would be deferred until such time as the committee was able to appreciate what effect, if any, such revision had upon the various matters under their consideration.

"Staggering" Office Hours on the Southern.—In order to relieve overcrowding of trains at the peak hours, and also with a view to setting an example to other large business concerns, it has been decided that the hours of work in the Audit Department at London Bridge, Southern Railway, which department is to a large extent self-contained, shall be 8.30 a.m. to 4.30 p.m. on Mondays to Fridays, and 8.30 a.m. to 11.30 a.m. on Saturdays. The arrangement, which started on January 2, is an experiment, and will be continued for a trial period of six months.

London-Paris "Seasons" for Business or Pleasure.—A New Year gesture has been made to Continental travellers by the Southern Railway and the French National Railways, in the form of a new type of Continental railway season ticket. First and second class season tickets are issued, available for six, nine, or 12 months, and valid for 12, 18, or 24 journeys respectively. The new tickets can be obtained from the Continental Department, Southern Railway, Victoria station, S.W.1, and applicants should supply two photographs of passport size to be attached to the tickets.

London City Manager's Staff Social, L.N.E.R.—The eighth annual dinner and dance of the London City Manager's Staff, L.N.E.R., was held on January 13 at the Liverpool Street Hotel. Mr. Percy Syder, London City Manager, presided. Mr. Syder, in proposing the toast of the L.N.E.R., spoke of some of the ways in which the intentions of the railway companies' "square deal" campaign were misrepresented; all they asked was to be given an equal start with other forms of transport, and had never sought to be freed from their common carrier obligations. Mr. Robbins, Goods Agent, King's Cross, proposed the health of the Chairman, referring to Mr. Syder's keen interest in all matters pertaining to staff welfare.

Argentine Railways and Exchange.—Reuters announces that the Argentine Government has authorised an exchange rate, of 16 pesos to the pound sterling, for the railways until the end of the year, provided that remittances do not exceed last year's total.

Sabotage Causes Derailment in India.—Messages from Calcutta report that the East Indian Railway Calcutta-Dehra Dun express was derailed in the early morning of January 12 at a point 210 miles from Calcutta. Seven persons were killed and fifty injured. The engine and first and last coaches were not derailed (or became rerailed), but the tender and five middle coaches were derailed, overturned, and some of the latter caught fire. The driver reports that he saw too late that rails had been removed, yet his engine is reported to have jumped the gap.

Incident at Kingsbridge, Dublin.—On January 13, at 9.30 a.m., a number of men entered the arrival platform at Kingsbridge station, Dublin, and, armed with spanners or pliers, they seized about ten cans of milk which had arrived from Mallow by the up night mail train, at 3.30 a.m., and forcibly opening the cans, emptied the contents on the platform. The railway company was not concerned in the dispute which gave rise to the incident, which was a forceful protest against an alteration in the milk-purchase arrangements. Apparently, the milk which came 144 miles from Mallow interfered with the sale from places nearer Dublin.

French Railway External Loans.—It is announced that the following external loans of the French Railways system will be called for redemption at an early date:—Cie. du Chemin de fer du Nord 6½ per cent. dollar loan of 1924; Cie. du Chemin de fer de Paris à Orléans 6 per cent. Dutch florin loan of 1927; Cie. du Chemin de fer de Paris à Orléans 5½ per cent. dollar loan of 1928; Cie. du Chemin de fer de Paris à Orléans 5 per cent. Dutch florin loan of 1928; Cie. du Chemin de fer de Paris à Orléans 5 per cent. Swiss franc loan of 1930; Cie. du Chemin de fer de Paris à Lyon et à la Méditerranée 4½ per cent. Dutch florin and Swiss franc loan of 1932; Administration des Chemins de fer d'Alsace et de Lorraine 5 per cent. Dutch florin loan of 1929; Administration des Chemins de fer d'Alsace et de Lorraine 4½ per cent. Dutch florin loan of 1932. Holders of bonds of the above issues are offered the opportunity of converting into a new 4 per cent. loan of the Republic of France expressed in Dutch florins or the equivalent thereof in Swiss francs at the fixed rate of exchange of Dutch florins 100.—Swiss francs 240·50. Particulars may be obtained on application to the Swiss Bank Corporation, 99, Gresham Street, E.C.2, and 11c, Regent Street, S.W.1.

More French 4-8-0 Locomotives.—The French National Railways are about to convert at the Tours works 25 *ex*-Paris-Orleans Pacific locomotives into 4-8-0 locomotives of the type which has already given excellent service on the P.O.-Midi lines. This decision is the result of successful tests carried out in the South Eastern Region (*ex*-P.L.M.). The converted locomotives will be used on the Paris-Marseilles main line. At present there are 12 similar locomotives, the first of which was converted at Tours in 1912 and the remainder in 1934. They are used for the haulage of 600-700 tons expresses on the Montauban-Brive section of the South Western Region Central France main line.

A Sequel to the Bihta Derailment

In an editorial dealing with the judicial inquiry into the Bihta derailment on the East Indian Railway, in July, 1937—published on page 824 in our issue of April 29, 1938—the following passage occurs in connection with Justice Sir John Thom's finding: "He considers, however, that after a report by the driver of No. 6 down mail, a few hours prior to the derailment of No. 18 down express, of a bad jerk and defective track in the same neighbourhood, there was negligence in that no caution order was issued. The Deputy Controller at Dinapore is held guilty of an error of judgment and of gross dereliction of duty in this connection." Also on page 623 in our issue of October 7 last, we reported that Mr. C. W. Ralph, Deputy Traffic Controller at Dinapore, was then under trial at that place under section 101 of the Indian Railways Act, for neglect of duty in failing to issue the caution order that would probably have prevented the derailment. The magistrate, it is now reported, has found Mr. Ralph guilty and sentenced him to a fine of Rs. 500 (£37 10s.) or in default to rigorous imprisonment for one month. The magistrate, in his judgment, observed that punishment should be according to the risk involved. Here the accident happened but the accused's act enhanced the danger. If this had been a direct cause of the accident, extreme punishment should have been awarded.

Forthcoming Meeting

Feb. 1 (*Wed.*)—**Forth Bridge Railway Company** (Statutory General), King's Cross Station (L.N.E.R.), N.1, at 11.15 a.m.

Railway and Other Reports

Glyn, Mills & Co.—In the balance sheet of this well-known private banking firm total assets as at December 31, 1938, are shown at £40,903,040. To this amount £5,472,083 was contributed by coin, bank notes, and balance at the Bank of England; £2,162,952 by balances with, and cheques in course of collection on, other banks in the United Kingdom; and £10,158,921 by investments. Money at call and at short notice totalled £8,587,600; and bank premises were valued at £620,000 freehold, and £120,000 leasehold. Cash, money at call and short notice, and investments represent 67·7 per cent. of the deposits of £35,809,496. The reserve fund stands at £530,000, and issued capital at £1,060,000.

Midland Bank Limited.—The directors report that, full provision having been made for all bad and doubtful debts, the net profits for the year 1938 amount to £2,445,671, which, with £591,044 brought forward, makes £3,036,715, out of which the following appropriations amounting to £1,529,200 have been made: To interim dividend, paid July 15, 1938, for the half-year ended June 30, 1938, at the rate of 8 per cent. actual less income tax, £879,200; to reduction of bank premises account, £150,000; to reserve for future contingencies, £500,000; leaving £1,507,515, from which the directors recommend a dividend, payable February 1 next, for the half-year ended December 31, 1938, at the rate of 8 per cent. actual, less income tax, £879,200, and a balance to be carried forward of £628,315. For 1937 the net profit was £2,508,009, the dividend was 16 per cent., and the allocations were: To reduction of bank premises, £400,000; and to reserve for contingencies, £300,000.

Gloucester Railway Carriage & Wagon Co. Ltd.—An interim dividend is announced of 5 per cent. on account of the year ending May 31 next. No interim payment was made for 1937-38, but the dividend for the whole year 1937-38 was 3 per cent.

British and Irish Traffic Returns

GREAT BRITAIN.	Totals for 2nd Week			Totals to Date		
	1939	1938	Inc. or Dec.	1939	1938	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,831¼ mls.)						
Passenger-train traffic...	368,000	380,000	– 12,000	734,000	762,000	– 28,000
Merchandise, &c. ...	401,000	480,000	– 79,000	746,000	929,000	– 183,000
Coal and coke ...	323,000	324,000	– 1,000	601,000	628,000	– 27,000
Goods-train traffic ...	724,000	804,000	– 80,000	1,347,000	1,557,000	– 210,000
Total receipts	1,092,000	1,184,000	– 92,000	2,081,000	2,319,000	– 238,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	253,000	255,000	– 2,000	497,000	517,000	– 20,000
Merchandise, &c. ...	269,000	334,000	– 65,000	492,000	631,000	– 139,000
Coal and coke ...	291,000	287,000	+ 4,000	504,000	542,000	– 38,000
Goods-train traffic ...	560,000	621,000	– 61,000	996,000	1,173,000	– 177,000
Total receipts	813,000	876,000	– 63,000	1,493,000	1,690,000	– 197,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	163,000	165,000	– 2,000	331,000	334,000	– 3,000
Merchandise, &c. ...	170,000	196,000	– 26,000	334,000	385,000	– 51,000
Coal and coke ...	119,000	133,000	– 14,000	236,000	261,000	– 25,000
Goods-train traffic ...	289,000	329,000	– 40,000	570,000	646,000	– 76,000
Total receipts	452,000	494,000	– 42,000	901,000	980,000	– 79,000
S.R. (2,140 mls.)						
Passenger-train traffic...	262,000	261,000	+ 1,000	522,000	527,000	– 5,000
Merchandise, &c. ...	52,500	58,500	– 6,000	99,500	110,000	– 10,500
Coal and coke ...	39,500	39,500	—	67,500	71,000	– 3,500
Goods-train traffic ...	92,000	98,000	– 6,000	167,000	181,000	– 14,000
Total receipts	354,000	359,000	– 5,000	689,000	708,000	– 19,000
Liverpool Overhead ... (6½ mls.)	1,347	1,420	– 73	2,856	2,842	+ 14
Mersey (4½ mls.) ...	4,650	4,632	+ 18	9,504	9,459	+ 45
*London Passenger Transport Board ...	574,800	566,500	+ 8,300	16,473,100	16,299,800	+ 173,300
IRELAND.						
Belfast & C.D. pass. (80 mls.)	1,755	1,792	– 37	3,335	3,345	– 10
,, ,, goods	344	432	– 88	635	715	– 80
,, ,, total	2,099	2,224	– 125	3,970	4,060	– 90
Great Northern pass. (543 mls.)	8,200	8,200	—	17,050	17,050	—
,, ,, goods	8,550	8,450	+ 100	15,350	14,800	+ 550
,, ,, total	16,750	16,650	+ 100	32,400	31,850	+ 550
Great Southern pass. (2,076 mls.)	28,181	28,596	– 415	58,725	58,808	– 83
,, ,, goods	39,086	50,854	– 11,768	81,125	98,314	– 17,189
,, ,, total	67,267	79,450	– 12,183	139,850	157,122	– 17,272

* 29th Week (before pooling)

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices Jan. 18, 1939	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	65¼	25¾	25	—
5% Con. Prefce....	118¾	74	80½	–2½
5% Red.Pref.(1950)	111¾	90	92½	—
4% Deb.	111	97½	98½	–1
4½% Deb.... ...	112 5/16	100½	102½	—
4½% Deb.... ...	118½	104	108½	—
5% Deb.	131½	119	118½	—
2½% Deb.... ...	69¾	60	63½	—
5% Rt. Charge ...	129	114	114½	–1
5% Cons. Guar. ...	128½	103	109½	—
L.M.S.R.				
Ord.	30½	11	12	–¼
4% Prefce. (1923)	70¼	23	25	–2½
4% Prefce. ...	82¼	43¾	45	–2½
5% Red.Pref.(1955)	103½	66	67½	–2
4% Deb.	105 15/16	85	94½	–1
5% Red.Deb.(1952)	114¼	105	106	—
4% Guar. ...	102¾	77½	80½	–3
L.N.E.R.				
5% Pref. Ord. ...	8 9/16	3½	4	–¼
Def. Ord.	4 7/16	2 1/16	2¼	–⅛
4% First Prefce.	68¼	21	23½	–2
4% Second Prefce.	27¼	8	10	—
5% Red.Pref.(1955)	97	40¼	44½	–1
4% First Guar. ...	97½	66¼	70½	–2
4% Second Guar.	91¼	52	58½	–3
3% Deb.	79¼	60	68½	–1
4% Deb.	104 1/8	77	89½	–½
5% Red.Deb.(1947)	110 5/8	97	104½	—
4½% Sinking Fund Red. Deb.	108 11/16	101	102½	–½
SOUTHERN				
Pref. Ord. ...	87	47⅞	56	–1
Def. Ord. ...	21¾	9¼	11¼	–¾
5% Pref.	115	83	90½	–1
5% Red.Pref.(1964)	115½	98	100½	—
5% Guar. Prefce.	128½	106	113½	–1
5% Red.Guar.Pref. (1957)	116	109½	111½	—
4% Deb.	109¼	95	97½	–1
5% Deb.	129	117	117½	—
4% Red. Deb. 1962–67	107	101½	101	—
BELFAST & C.D.				
Ord.	4	3½	4	—
FORTH BRIDGE				
4% Deb.	102	99⅛	96½	—
4% Guar. ...	103¼	94½	95	—
G. NORTHERN (IRELAND)				
Ord.	5½	2½	3½	—
G. SOUTHERN (IRELAND)				
Ord.	25½	8½	15	—
Prefce.	35	13	13	—
Guar.	70¼	30 15/32	30	–½
Deb.	83	56	55	—
L.P.T.B.				
4½% "A" ...	119⅝	107½	110½	–1
5% "A" ...	130	117	118½	–1
4½% "T.F.A." ...	108	98	102½	—
5% "B" ...	122 15/16	105	115½	–1
"C"	84	68	74	—
MERSEY				
Ord.	24¼	16½	20	—
4% Perp. Deb. ...	102⅞	94¾	94½*	—
3% Perp. Deb. ...	77	69	66½*	—
3% Perp. Prefce.	66½	57	55	—

* ex dividend

CONTRACTS AND TENDERS

Stratford Signalling Contract, L.N.E.R.

The General Railway Signal Co. Ltd. has been awarded the contract to supply and instal complete new power signalling for the whole of the Stratford area. This installation includes not only the re-signalling of Stratford station, but also Devonshire Street, Bow Junction, and the approach roads, and will be one of the largest power signal installations in the country. Operation will be from four G.R.S. "NX" control panels, which will replace ten existing mechanical frames and control 183 colour-light signals, 33 junction indicators, 28 route indicators, and 183 point machines, together with all control relays and 262 track circuits suitable for electric traction when required. Location cases will be of the welded steel type housing under one cover all apparatus and cables required at that point. "NX" interlocking is a G.R.S. system of route interlocking, and is referred to editorially on page 87. Its name meaning "ENtrance—EXit" characterises the simplicity of operation with this scheme.

L.N.E.R. Rolling-Stock Programme

The L.N.E.R. announces that in connection with the 1939 rolling-stock programme 692 coaches, mainly of four- and six-wheel construction, are to be broken up and new construction under the programme for the year will be limited to 414 coaches.

The Associated Equipment Co. Ltd. has received an order from the Northern General Transport Co. Ltd. for 53 Regal diesel-engined single-deck buses; and an order from the Sheffield Corporation for 15 Regent double-deck vehicles.

Shaw, Wallace & Co. has received orders from the Indian Stores Department for a total of 209 locomotive axles and 325 locomotive tyres.

Jessop & Co. Ltd. has received an order from the Indian Stores Department for 40,000 mild steel bearing plates for 60 R.B.S.S. and 4-in. flanged steel rails.

Hurst, Nelson & Co. Ltd. has received an order from the Crown Agents for the Colonies for one insulated bogie petrol tank wagon for service on the Kenya & Uganda Railways. This tank wagon is to be constructed similar to American types having centre girder and without solebars, and with large capacity dome.

The South Indian Railway Administration has placed orders, to the inspection of Messrs. Robert White & Partners, with the Coventry Machine Tool Co. Ltd. for one heavy forging machine and with Webster & Bennett for one duplex boring and turning mill.

The S.A. de Rectification et d'Engrenages Procédés Minerva has received an order for 13 five-speed mechanical transmissions for installation in railcars for the Tunisian Railways.

Fried. Krupp A.G. has received an order from the Norwegian State Railways for a 2,000-b.h.p. diesel locomotive to be powered by two M.A.N. engines with Büchi pressure-chargers and to be equipped with Krupp (Lysholm-Smith) hydraulic transmission. The locomotive is to be used on the Oslo-Bergen main line.

Locomotives and Coaches for Australia

The Clyde Engineering Co. Ltd. has received an order from the New South Wales Government Railways for the supply of five 4-6-2 type passenger locomotives to have cast frames and cylinders, 240 lb. per sq. in. boiler pressure, modified streamlining, and a 36,000-lb. tractive effort.

The Waddington Body Co. Ltd. has received an order from the New South Wales Government Railways for the supply of 35 tourist cars of steel construction, with anti-telescopic ends and forced ventilating equipment.

The Egyptian State Railways Administration has recently placed the following orders:—

H. J. Skelton & Co. Ltd.: Mild steel rounds (Ref. No. E.S.R. 1.475, total cost £336 16s. delivered free Gabbary Quay, Alexandria).

Skoda Works: Carriage and wagon tyres (Ref. E.S.R. 21.926, total price £478 10s. delivered f.o.b. Hamburg or Trieste).

British Insulated Cables Limited: Cordage for telephones (Ref. No. E.S.R. 334G3/33, approximate total cost £3,198 f.o.b. Liverpool or Birkenhead).

William Beardmore & Co. Ltd.: Engine tyres (Ref. No. E.S.R. 21.944, total price £3,493 18s. f.o.b. Glasgow).

S. A. Gilson: Bolts and nuts (Ref. No. E.S.R., total price, approx. £1,406, f.o.b. Antwerp).

Francis Klein & Co. has received orders from the Stores Purchase Committee, Government of Mysore, for 478 steel boiler tubes and 104 steel flue tubes.

Shaw, Wallace & Co. has received an order from the Indian Stores Department for 10 crank axles at a total price of Rs. 21,195.

J. O'Hara, Murray & Co. (India) Ltd. has received orders from the Indian Stores Department for a total of 927 locomotive tyres, at a total price of Rs. 158,422.

Jessop & Co. Ltd. has received an order from the Indian Stores Department for 506 locomotive tyres at a total price of Rs. 66,033.

Vickers India Limited has received orders from the Indian Stores Department for nine crank axles and 159 steel locomotive tyres at prices of Rs.20,070 and Rs.27,368 respectively.

W. Alexander & Sons have received an order from the Sheffield Corporation for 50 diesel-engined single-deck buses.

Leyland Motors Limited has received orders from the Sheffield Corporation for 12 oil-engined and torque-converter double-deck vehicles.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by February 6, for the supply of a quantity of steel bogie bolster, volute, and draw springs.

Tenders are invited by the Controller of Stores, Track Supply Board, North Western Railway, Lahore, receivable by March 13, for the supply of 64,000 broad-gauge steel sleepers.

Tenders are invited by the Bombay Baroda & Central India Railway, receivable at the White Mansion, 91, Petty France, Westminster, S.W.1, by February 8, for the supply of locomotive axles and tyres, and copper firebox plates.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by February 8, for the supply of one hand-operated engine turntable, metre-gauge, 65 ft. dia., required for the Jodhpur Railway.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by February 8, for the supply of a quantity of helical and spiral draw and buffer springs required for the North Western Railway.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by February 6, for the supply of 1,000 steel superheater flues required for the North Western Railway.

Forthcoming Events

Jan. 20 (*Fri.*).—Institute of Transport (East Midlands), at Guildhall, Nottingham, 7 p.m. "Recent Economic Trends in the Transport Industry," by Mr. K. Fenelon.

Permanent Way Institution (Hull), at Lecture Hall, Paragon Station, 7 p.m. Question Night.

North-East Coast Institution of Engineers and Shipbuilders, Bolbec Hall, Newcastle, 6 p.m. "Intercrystalline Cracking in Boiler Plates," by Dr. C. Desch.

Jan. 21 (*Sat.*).—Stephenson Locomotive Society (Newcastle), at Y.M.C.A., Blackett Street, 6.30 p.m. "The Carlisle–Settle Line, L.M.S.R.," by Mr. N. Wilkinson.

Jan. 23 (*Mon.*).—G.W.R. (Birmingham) Lecture and Debating Society, at Great Western Hotel, Snow Hill Station, 6.30 p.m. "Recent Developments in Permanent Way Practice," by Mr. F. Lambert.

Stephenson Locomotive Society (Scottish), at Royal Technical College, George Street, Glasgow, 7.30 p.m. "The Railways of Ireland," by Mr. J. McEwan.

Jan. 24 (*Tues.*).—Federation of Lecture and Debating Societies (N.E. Area), at Co-operative Hall, Darlington, 7.30 p.m. Lecture by Mr. A. Robinson.

Institute of Transport (Birmingham Graduate), at Chamber of Commerce, 6.30 p.m. "Transport as a Career," by Mr. C. Shaw.

Institution of Engineers and Shipbuilders in Scotland, at 39, Elmbank Crescent, Glasgow, 7.30 p.m. "Railways and the Quest for Speed," by Mr. A. McMurdo.

Permanent Way Institution (Scottish), at Royal Technical College, George Street, Glasgow, 7.15 p.m. Annual Business Meeting.

Jan. 25 (*Wed.*).—Institution of Locomotive Engineers (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6 p.m. "A Diesel Train Set with Multiple Axle Drives," by Messrs. H. Haworth and T. Hornbuckle.

Jan. 26 (*Thurs.*).—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m. "The Relations of the G.W.R. with the Public and the Press," by Mr. M. Dewar.

Jan. 27 (*Fri.*).—Institute of Transport (Manchester–Liverpool), at Exchange Station Hotel, Liverpool. Visit of the President. Dinner.

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post :—

CHIEF DRAUGHTSMAN (MECHANICAL) required for the Federated Malay States Railway for three years with possible permanency. Salary $400 a month rising by annual increments of $20 a month to $600 a month. (The Government rate of exchange is now 2s. 4d. to the dollar.) A children's allowance is payable to married officers with children. Free passages, and if married for wife and children, not exceeding four persons, subject to certain conditions. Liberal leave on full salary. Candidates, not more than 32 years of age, must have served an apprenticeship with a British Railway or firm of Locomotive Builders, and have had at least three years' experience in a Locomotive or Carriage and Wagon Drawing Office. They must possess a Higher National Certificate in Mechanical Engineering or equivalent qualification.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/5699.

Royal State Railways of Siam

NOTICE.

SEALED Tenders for the supply of Steel Superstructures of Railway Bridges will be received by the Superintendent of Stores, Royal State Railways of Siam, Bangkok, Siam, up to 14.00 o'clock on the 13th April, 1939, at which hour and date they will be privately opened in the Superintendent of Stores' Office.

Blank Tender Forms are obtainable from Messrs. Sandberg, 40, Grosvenor Gardens London, S.W.1, and 25, Broadway, New York City, at the price of £4 0s. 0d. and U.S. $20.00 per set respectively.

THE ADMINISTRATION,
ROYAL STATE RAILWAYS
OF SIAM.

London & North Eastern Railway

NOTICE IS HEREBY GIVEN that the Directors have fixed 26th January at the close of business as the date for striking the balances of the Company's Guaranteed, Preference and Ordinary Stocks. Final Dividends declared for the year ended 31st December, 1938, will be payable only to the Stockholders whose names are registered in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 5.0 p.m. on 26th January.

By Order,
P. J. DOWSETT,
Secretary.

Marylebone Station,
London, N.W.1.
16th January, 1939.

Universal Directory of Railway Officials and Railway Year Book

44th Annual Edition, 1938-39

This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

Price 20/- net.

THE DIRECTORY PUBLISHING CO. LTD., 33, Tothill Street, Westminster, S.W.1.

Railway Stockholders' Luncheon

Sir Ronald Matthews on railway policy in event of "square deal" proposals being accepted

Sir Ronald Matthews, Chairman of the L.N.E.R., looked beyond the "square deal" campaign to the policy envisaged should it be successful, when addressing a luncheon of the British Railway Stockholders Union at the Hotel Splendide, Piccadilly, on January 18.

Sir Charles Stuart-Williams, Chairman of the union, proposed the health of "the Guests," coupled with the name of Sir Ronald Matthews. It was four years since the union had welcomed his predecessor as L.N.E.R. Chairman, Mr. William Whitelaw, as a guest, and he referred to the respect and admiration in which Mr. Whitelaw was held by members of the union for his vigorous and emphatic championship of stockholders' interests. In addition to Sir Ronald Matthews, they had to welcome Sir Osborne Mance, formerly rapporteur-general of the Special Road and Rail Committee of the International Chamber of Commerce, and author of the long-term policy scheme for British transport; Sir Reginald Clarry, M.P. for Newport, at present acting as Chairman of the Parliamentary Road Group; and Mr. C. E. R. Sherrington, of the Railway Research Service.

The transport of merchandise by railways declined faster than production when business was deteriorating, and increased more slowly than production when business was improving. Whereas, at the worst of the 1932 slump, railway merchandise transport—taking 1929 as 100—had fallen to 67½ per cent., the commercial vehicles in use had actually risen to 113—and when somewhat better times came, the railway figure for 1937 was only 88·7 per cent., while the commercial vehicle figure was 146. When the present situation was resolved, there were two important conditions to be met. One was the avoidance in any co-ordination scheme of an unfortunate situation such as had arisen in Ireland, where heavy sacrifices by stockholders were unavailing on account of defects in the plan; the other was that the present seemed hardly a suitable time for railway staff to demand conditions of service in advance of those enjoyed by the most prosperous industries, for stockholders wanted to see an improvement not only in gross, but in net revenue.

Sir Ronald Matthews replied to the toast. The first duty of a railway board, he said, must always be to the stockholders. The rights of the stockholder were clearly recognised by the Government of the day in the standard revenue provisions of the 1921 Act. That they had never been fully met, owing to causes outside the control of the railway managements, detracted in no way from the inherent justice of the stockholders' claims. The railways, trammelled and hampered at every turn by archaic restrictions, imposed to protect the public against possible exploitation by a monopoly, were today faced by a form of competition against which no business could hope to compete. In asking for relief, they wanted no privileges that other forms of transport did not enjoy—all they said was "give us equal terms and we will do the rest." Granted freedom, they were sure they could offer their customers terms that would enable the railways to be operated at or near capacity. The more traffic they got, the more attractive would be the terms they could offer and the more customers would benefit.

The railways were naturally asked what they would do with their freedom when (he would not say "if") they got it. One thing they certainly would not do, and that was to embark on a wholesale rate-cutting war. The first thing would be to take such steps as would stop the ever-increasing drift of traffic away from the railways. The next to recover traffic which, in the opinion of most people, should never be carried except by rail. The third to encourage erstwhile customers who had been led to haul their own products by inability to get the exact services they require, to come back to the railways by offering them prompt and reasonable quotations. There were hundreds of firms in this country today who were unwilling operators of their own transport and who would willingly be relieved of the responsibility of maintaining their own fleets. And lastly, starting on level terms with their competitors they would use their best endeavours to build up with them a co-ordinated transport industry, subject to such controls as Parliament in its wisdom might think fit in the national interest to impose equally on all, in order that the nation might have, in peace or in war, transport facilities adequate for every need.

Sir Osborne Mance moved a vote of thanks to Sir Ronald Matthews, and to all concerned with the arrangement of the luncheon. At the present moment, he said, the railways were getting a raw deal, and they must have some other kind of deal. He looked upon the square deal as a deal with equal sides for railways, roads, transport users, and taxpayers. Some people thought the present proposals meant a road-rail axis, or a triangle between road, rail, and their users, with the taxpayer shut up in the middle. He thought a debt of gratitude was due to the railways for forcing the issue at this juncture.

Mr. John Millar seconded the motion, and also proposed a vote of thanks to Sir Charles Stuart-Williams.

Among those present were :—

Sir Osborne Mance; Sir Reginald Clarry, M.P.; Sir Charles Stuart-Williams (Chairman of the union), Mr. H. Leslie Boyce, M.P. (Member of Council of the union); Messrs. D. Ross-Johnson, C. E. R. Sherrington (Secretary, Railway Research Service), Colonel C. R. Kelly, Mr. Ashley Brown, Vice-Admiral Caulfield, Lt.-Commander Chittenden, Messrs. W. J. Stevens, Ernest Short (Secretary of the union), Colonel A. H. Hutton-Wilson.

XUM

Railway Share Market

The stock and share markets have been reactionary and have been entirely under the influence of uneasiness regarding international affairs. The volume of business was again very small and scattered liquidation has a depressing influence on share values, but subsequently the undertone was steadier and the lower prices tended to attract buyers.

Bearing in mind the general market trend it is hardly surprising that home railway securities continued to move against holders, particularly in view of the heavy fall in receipts shown by the past week's traffic return. It continues to be assumed in many quarters that most of the debentures are at unduly low prices having regard to their good investment merits, but it is realised that there is little likelihood of sentiment in regard to home railway stocks improving until the outlook can be more clearly assessed. There is, therefore, a widespread tendency to await the results of annual meetings and the outcome of the "square deal" claims.

Southern stocks failed to respond to the proposed increase in fares in the London area, and the preferred and deferred stocks transferred around **56** and **11¼** respectively, while the **5** per cent. preference was **90** and the guaranteed preference **113**. The new **4** per cent. debentures, which are **£30** paid, have kept at a fractional premium. A fair amount of liquidation was reported in L.N.E.R. stocks, and the first preference declined to **23½**, while the second preference is now **9½**. The **3** per cent. debentures at **68½** and the **4** per cent. debentures at **89½** would appear to have been reduced unduly in price. Similar remarks apply in the case of the first guaranteed at **70½** and to the second guaranteed at **58**, but the results will have to be awaited for information as to the extent to which reserves may have to be drawn on to pay the full dividend on the last named. Great Western went back to **24½**, but later showed a small rally to **25**, while various of the railway's prior charges were uncertain because they will lose their full trustee status in the event of the dividend on the ordinary stock being less than **3** per cent. The **4** per cent. debentures were **98½** and the **5** per cent. preference **80**, the last named now being ten points below the corresponding **5** per cent. stock of the Southern Railway. L.M.S.R. **4** per cent. preference was **45½** and the **1923** preference **25**, while the **4** per cent. guaranteed was **80½**, the **4** per cent. debentures **94½** and the **5** per cent. debentures **107**. London Transport "C" stock at one time showed a firmer tendency on the proposed increase in fares, but later went back to **74**.

Argentine railway securities were affected by the general trend of markets and prices reacted sharply, although this was again attributed more to absence of demand than to selling pressure. B.A. Great Southern **5** per cent. preference declined to **38** and Central Argentine **6** per cent. preference to **29**. Cordoba Central debentures lost most of the improvement which followed publication of the company's capital scheme. San Paulo and other Brazilian railway securities failed to hold the better tendency which appeared to be developing last week. American railway shares were reactionary and Canadian Pacific changed hands around 5¾.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1938-39	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1938	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1938	Prices: Lowest 1938	Prices: Jan. 18, 1939	Prices: Yield (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	15 1.39	12,090	— 8,800	2	22,920	37,970	— 15,050	Ord. Stk.	14	7¼	8½	Nil
	Argentine North Eastern ..	753	14.1.39	8,666	— 1,427	29	290,204	277,558	+ 12,646	„	6½	2	5½	Nil
	Argentine Transandine ..	—	—	—	—	—	—	—	—	A. Deb.	82	75	72½	5½
	Bolivar	174	Dec., 1938	2,050	— 1,850	52	42,150	59,550	— 17,400	6 p.c. Deb.	8	7	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	10	4	5	9 1/16
	Buenos Ayres & Pacific ..	2,806	14.1.39	95,216	+ 3,908	29	2,184,309	2,316,566	— 132,257	Ord. Stk.	6½	3¼	4	Nil
	Buenos Ayres Central ..	190	31.12.38	$108,900	+ $16,400	27	$3,047,900	$3,421,800	— $373,900	Mt. Deb.	15½	8	17	Nil
	Buenos Ayres Gt. Southern	5,082	14.1.39	174,194	— 30,210	29	3,706,948	3,795,843	— 88,895	Ord. Stk.	17 5/16	8½	10½	Nil
	Buenos Ayres Western ..	1,930	14.1.39	53,102	+ 7,382	29	1,196,650	1,315,572	— 118,922	„	12⅝	5	8	Nil
	Central Argentine	3,700	14.1.39	134,956	+ 7,102	29	3,101,160	3,666,558	— 565,398	„	13¼	5⅝	8¼	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	6	2½	4	Nil
	Cent. Uruguay of M. Video	972	7.1.39	15,679	— 2,119	28	500,641	471,454	+ 29,187	Ord. Stk.	3	1¼	2	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	Ord. Inc.	3⅝	⅝	2¼	Nil
	Costa Rica	188	Nov., 1938	17,764	— 4,572	22	112,640	123,362	— 10,722	Stk.	28	22½	23	8 1/16
	Dorada	70	Dec., 1938	15,200	— 1,900	52	193,300	187,200	+ 6,100	1 Mt. Db.	105¼	104	103½	5 1/16
	Entre Rios	810	14.1.39	18,828	— 2,419	29	453,335	408,086	+ 45,249	Ord. Stk.	7¼	3½	5½	Nil
	Great Western of Brazil ..	1,092	14.1.39	12,700	+ 1,900	2	23,700	20,400	+ 3,300	Ord. Sh.	3/-	1/-	1¼	Nil
	International of Cl. Amer...	794	Nov., 1938	$500,436	+ $56,587	48	$5,081,216	$5,224,782	— $143,566	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	6d.	6d.	½	Nil
	La Guaira & Caracas ..	22¾	Dec., 1938	800	— 4,090	52	57,905	61,575	— 3,670	Stk.	8	6½	7½	Nil
	Leopoldina	1,918	14.1.39	24,988	+ 5,116	2	48,268	37,362	+ 10,906	Ord.Stk.	4	1	2	Nil
	Mexican	483	7.1.39	$245,800	+ $31,700	1	$245,800	$214,100	+ $31,700	„	¼	1/16	⅛	Nil
	Midland of Uruguay ..	319	Dec., 1938	10,372	+ 210	26	53,944	52,725	+ 1,219	„	7/8	½	½	Nil
	Nitrate	386	15.1.39	3,819	— 2,957	2	3,819	6,776	— 2,957	Ord. Sh.	52/9	19/16	11 1/16	6
	Paraguay Central	274	14.1.39	$2,760,000	— $47,000	29	$88,176,000	$92,947,000	— $4,771,000	Pr. Li. Stk.	60	55½	55½	5 7/16
	Peruvian Corporation ..	1,059	Dec., 1938	68,780	— 8,128	26	409,453	504,036	— 94,583	Pref.	5⅝	1⅝	2¾	Nil
	Salvador	100	7.1.39	¢30,750	+ ¢1,750	28	¢431,964	¢417,375	+ ¢14,589	Pr. Li. Db.	23	20	19½	Nil
	San Paulo	153½	8.1.39	27,121	+ 320	1	27,668	28,287	— 619	Ord. Stk.	64	28	26½	15 1/16
	Taltal	160	Dec., 1938	3,400	— 2,785	26	16,915	22,535	— 5,620	Ord. Sh.	15/16	½	5/8	16
	United of Havana	1,353	14.1.39	18,553	— 1,723	29	452,619	482,706	— 30,087	Ord. Stk.	3⅝	½	1	Nil
	Uruguay Northern	73	Dec., 1938	1,224	+ 185	26	6,428	5,348	+ 1,080	Deb. Stk.	2	1	2	Nil
Canada	Canadian National	23,721	7.1.39	561,451	+ 17,499	1	561,451	543,952	+ 17,499	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	72	60	70½	5 11/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104	90	99½	4
	Canadian Pacific	17,186	14.1.39	425,200	— 47,000	2	850,400	929,800	— 79,400	Ord. Stk.	8 7/16	4¼	6	Nil
India†	Assam Bengal	1,329	20.12.38	43,312	+ 4,751	38	1,071,780	989,511	+ 82,269	Ord. Stk.	8 11/2	70	75½	4
	Barsi Light	202	31.12.38	4,177	— 1,763	39	106,200	100,328	+ 5,872	Ord. Sh.	60½	54¼	58½	6 15/16
	Bengal & North Western ..	2,108	31.12.38	89,459	+ 2,903	13	687,846	692,811	— 4,965	Ord. Stk.	311	278	275	6 9/16
	Bengal Dooars & Extension	161	31.12.38	4,534	+ 483	39	116,149	113,398	+ 2,751	„	89	83	87½	7 7/16
	Bengal-Nagpur	3,268	31.12.38	218,175	— 8,745	39	5,133,295	5,219,783	— 86,488	„	95½	90	93½	4¼
	Bombay, Baroda & Cl. India	3,085	10.1.39	260,175	+ 9,075	41	6,716,475	6,801,000	— 84,525	„	112 7/16	95	107½	5 2/16
	Madras & Southern Mahratta	2,967	20.12.38	177,375	+ 15,568	38	3,953,671	3,739,005	+ 214,666	„	109	97	101½	7⅞
	Rohilkund & Kumaon ..	571	31.12.38	17,580	+ 421	13	123,895	120,687	+ 3,028	„	308	285	278	6½
	South Indian	2,531¾	20.12.38	106,804	— 10,586	38	2,959,486	2,994,251	— 34,765	„	104	101	102½	4⅞
Various	Beira-Umtali	204	Nov., 1938	86,540	— 4,097	9	164,305	186,351	— 22,046	—	—	—	—	—
	Egyptian Delta	620	31.12.38	7,815	+ 346	39	172,193	182,314	— 10,121	Prf. Sh.	7/8	5/6	1/2	Nil
	Kenya & Uganda	1,625	Aug., 1938	182,150	— 14,527	35	1,860,357	1,920,155	— 59,798	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	49	41	47	7 7/6
	Midland of W. Australia ..	277	Nov., 1938	14,024	— 431	22	75,880	69,130	+ 6,750	Inc. Deb.	93¾	89	95	4 5/16
	Nigerian	1,900	3.12.38	61,227	— 14,338	36	1,182,636	1,801,300	— 618,664	—	—	—	—	—
	Rhodesia	2,442	Nov., 1938	392,385	— 35,849	9	779,368	895,597	— 116,229	—	—	—	—	—
	South Africa	13,285	24.12.38	657,912	— 2,131	39	24,046,696	24,917,817	— 871,121	—	—	—	—	—
	Victoria	4,774	Oct., 1938	828,129	+ 18,054	18	3,064,925	2,960,281	+ 104,644	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value